



June 6, 2014

Ms. Christy Riviere
Principal Environmental Planner
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

SUBJECT: IMPACT OF CROSS-MEDIA ISSUES ON WASTEWATER TREATMENT PLANTS

Dear Ms. Riviere,

The Air Issues and Regulations (AIR) Committee is a coalition of San Francisco Bay Area Publicly Owned Treatment Works (POTWs) working cooperatively to address air quality and climate change issues, under the guidance of the Bay Area Clean Water Agencies (BACWA). Many of our member agencies also manage potable water treatment, distribution systems, wastewater treatment, and biosolids residual programs. The BACWA AIR Committee has 14 member agencies, including large metropolitan facilities such as East Bay Municipal Utility District, the City and County of San Francisco, Central Contra Costa Sanitary District, and the City of San Jose. Together, BACWA AIR Committee member agencies treat over ninety percent of the municipal wastewater in the Bay Area.

The Bay Area Air Quality Management District (BAAQMD) intends to update the Clean Air Plan in 2014 to incorporate a Climate Protection Strategy for the Bay Area, address a multi-pollutant strategy regarding feasible emissions control measures, and identify mechanisms for encouraging and tracking greenhouse gas (GHG) emissions reductions. The BACWA AIR Committee supports the BAAQMD's intent to protect air quality in the Bay Area by continuing to reduce emissions of ozone precursors, particulate matter (PM), toxic air contaminants (TAC), and GHG. However, implementation of prior regulatory actions has resulted in contradictory impacts to the municipal wastewater treatment sector. While regulatory actions may be seen as effective when each media (air, water, climate change, etc.) is addressed separately, the deficiencies become evident when the regulations are viewed holistically as one set of regulations for protecting the overall environment. As a result, the BACWA AIR Committee members have several concerns regarding cross-media regulatory coordination.

1. Nutrient removal will impact facilities' GHG emissions

The San Francisco Regional Water Quality Control Board (Regional Water Board) recently issued a nutrient watershed permit for all POTWs that discharge to the San Francisco Bay¹. There are many uncertainties on the type and degree of impacts of nutrients in the San

¹Nutrient watershed permit is available at :
http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2014/R2-2014-0014.pdf.

Francisco Bay. The current permit does not require effluent nutrient load reductions, but does require support of scientific studies that will indicate whether there will be a need for reductions in future permits.

As part of the nutrient watershed permit, POTWs are required to perform studies to evaluate alternatives for optimizing and upgrading their facilities to remove nutrients from their effluent. Because many nutrient removal technologies are energy-intensive, any future requirements to reduce nutrient loads in effluent will have an impact on energy-related GHG emissions. As part of the optimization and upgrade studies required by the permit, POTWs will quantify this increase in GHG emissions for the different nutrient removal alternatives to be considered. The final optimization and upgrade reports are due July 1, 2018.

Because requiring nutrient removal has the potential to increase GHG emissions, it may work against Assembly Bill 32 and other BAAQMD climate change initiatives to reduce GHG emissions. POTWs should not be penalized for increased GHG emissions and additional economic burden as a result of more stringent future water regulations. The BACWA AIR Committee recommends that the BAAQMD consults with the Regional Water Board, and uses the results of the GHG analyses that will be part of the optimization and upgrade studies, to better understand the cross-media implications of nutrient removal.

2. Air quality regulations inadvertently discourage the use of renewable fuels

Second, there is concern that increasingly stringent air quality regulations governing stationary combustion conflict with GHG regulations encouraging the use of renewable fuels. For example, the U.S. Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and BAAQMD want Best Performance Standards (BPS) for limiting air emissions from engines and boilers. Biogas-fired engines and boilers often face unique operational and technical challenges² which may prevent them from achieving the same thermal efficiencies as natural gas-fired engines and boilers. Therefore, biogas-fired engines and boilers can neither cost effectively nor, in some cases, technically meet the BPS. In response to the BPS, an increasing number of POTWs are flaring biogas rather than using it as a renewable, non-fossil-fuel-based combustion fuel in engines and boilers to generate power from renewable sources that would otherwise unduly strain the waste management infrastructure of California, resulting in higher rates for the ratepayers and greater GHG emissions.

Las Gallinas Valley Sanitary District (LGVSD) in San Rafael, for example, has fallen victim to this regulatory conflict. The LGVSD wastewater treatment plant's biogas-fueled internal combustion engine, which generates renewable heat and power for on-site use, will not meet the BAAQMD Rule 9-8 emissions limits by 2016. The two most viable alternatives will cost LGVSD \$100,000 to \$200,000 per year over business-as-usual to utilize the biogas for renewable energy and may require significant biogas flaring.

Alternately, biogas is a commonly and widely recognized renewable fuel that reduces GHG emissions when used in place of fossil fuels.³ Similarly, in the California Low Carbon Fuel Standard life-cycle analysis of alternative fuels, landfill gas has the lowest carbon intensity

² Challenges include the pretreatment of siloxane contaminants to minimize equipment fouling, removal of excess moisture prior to combustion, and higher carbon dioxide content in non-combusted biogas, which causes a lower temperature differential between the flame front and the exhaust stream temperature.

³ Please see pages 92 through 99 of the San Joaquin Valley Air Pollution Control District's *Final Staff Report Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act*, dated December 17, 2009.

pathway of nearly every other fuel.⁴ In this regard, CARB is encouraging the use of biogas as a low carbon fuel to reduce anthropogenic GHG emissions, which is a direct contradiction to the implications of the BPS air regulations described above. Similarly, the California Public Utilities Commission's (CPUC) Self Generation Incentive Program⁵ (SGIP) recognizes biogas as a beneficial renewable fuel type that needs to be more widely utilized as part of California's renewables portfolio.

Based on the foregoing, the BACWA AIR Committee recommends that the BAAQMD allows the use of renewable fuels, such as biogas, as a potential alternative BPS for combustion units. Although combustion units fired with renewable fuels may not achieve the same thermodynamic efficiency as their fossil fuel counterparts, the use of renewable fuels will result in radically lower GHG emissions originating from fossil fuels. Therefore, the BACWA AIR Committee also recommends that the BAAQMD consults with CARB, CPUC, the California Energy Commission (CEC), and USEPA to ensure uniformity between federal, state, and local regulations governing the use of renewable fuels. The multiple issues raised related to biogas quality, based on origin (e.g., landfill versus wastewater treatment, as raised by the CEC), also need to be resolved before further limitations can be reliably imposed.

3. Incentives are needed to facilitate the development of green infrastructure

Lastly, the BACWA AIR Committee would like to stress the need for incentives to encourage green infrastructure. As noted previously, the BACWA AIR Committee supports the BAAQMD's intent to reduce emissions that may negatively affect the Bay Area's climate. However, many of the energy initiatives applicable to POTWs are impeded by existing regulations, sometimes set forth in the absence of proven technologies that can be cost-effective and widely implemented, as described above, and institutional barriers. The most notable institutional barriers include lengthy permitting processes, capital costs associated with infrastructure, and lack of effective, proven technologies. By offering more financial or administrative incentives to POTWs, statewide GHG emissions reduction goals may be better realized. For example, POTWs could help increase biogas production through the anaerobic digestion of food waste, fats, oils, and greases (FOG), algae-based biodiesel production biomass, etc., thus increasing the use of renewable fuels throughout the state and adding to California's renewables portfolio.

Given the concerns from the Bay Area wastewater treatment sector at large, we think it could be beneficial to meet with you or your staff to discuss our concerns in greater detail and collaborate on a solution that meets the needs of both the BAAQMD and BACWA agencies. Please contact the BACWA AIR Committee project manager, Jim Sandoval (510-610-9301), with any questions.

Sincerely,



David R. Williams
BACWA Executive Director

⁴ Please see CARB's lookup table for carbon intensity values: http://www.arb.ca.gov/fuels/lcfs/lu_tables_11282012.pdf. The closest to sewage digester gas is probably dairy digester gas, which has one of the lowest intensity values.

⁵ Please see CPUC's SGIP website: <http://www.cpuc.ca.gov/PUC/energy/DistGen/sqip/>.

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