June 26, 2017

SUBMITTAL VIA EMAIL TO: gstone@baaqmd.gov

Mr. Greg Stone
Supervising Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

SUBJECT: COMMENT LETTER ON BAAQMD PROPOSED REVISIONS TO REGULATION 2 - RULES 1, 2 AND 6

Dear Mr. Stone:

The Bay Area Clean Water Agencies Air (BACWA) appreciates the opportunity to comment on the Bay Area Air Quality Management District's (BAAQMD or Air District) proposed revisions to Regulation 2, Rules 1, 2, and 6 (Proposed Revisions). BACWA is a joint powers agency whose members own and operate publicly-owned wastewater treatment works (POTWs) that collectively provide sanitary services to over 7.1 million people in the nine-county San Francisco Bay (SF Bay) Area. BACWA members are public agencies, governed by elected officials and managed by professionals who protect the environment and public health. We have an active committee structure with our AIR Issues and Regulations (BACWA AIR) Committee charged with working cooperatively to address air quality and climate change issues.

As you would expect from dedicated environmental stewards, BACWA members provide reliable wastewater treatment to protect public health and the environment, and strive to exceed air and solids management requirements. We are providing specific comments below describing our concerns and recommendations related to the Proposed Revisions to Regulation 2 for your consideration.

Proposed Decrease in Greenhouse Gas Emissions Threshold Is Too Low

We understand the Air District is to develop and adopt a New Source Review (NSR) program that meets (or exceeds) the minimum requirements of the federal NSR program. In response to the Air District Board's direction to address the public's concern over greenhouse gas (GHG) emissions and climate change, Air District staff is proposing a significant reduction in the selected GHG threshold - specifically, from 75,000 to 25,000 metric tons per year carbon dioxide equivalent (CO_2e) emissions - without providing reasoning or a scientific basis.

The United States Environmental Protection Agency (U.S. EPA) has spent decades developing health-based National Ambient Air Quality Standards (NAAQS) - no such standard exists for CO_2e. It is clear that using the existing regulatory thresholds under the NSR program for criteria

air pollutants (100/250 tons per year, tpy) is not appropriate; however, the CO_2e threshold that the Air District is proposing of 25,000 tpy corresponds to a relatively small combustion source. If best available control technology (BACT) is applied, the corresponding NO_x emission levels may be as low as 2 tpy, far below the 100/250 tpy levels in PSD or Title V. Sources emitting at these levels are clearly minor sources. Both PSD and Title V were established as part of "major source" programs. The 25,000 tpy CO_2e level has no correlation to the original major source size envisioned by Congress. Therefore, **BACWA recommends an approach that is consistent with the Congressional intent of regulating large sources, coupled with a strategy to develop a more permanent regulatory path for GHGs that recognizes the inherent differences between GHGs and criteria pollutant emissions**. Two potential approaches are summarized below:

- A more logical approach to determining a threshold that represents "major sources" might be to use a combustion device, such as a boiler, and determine its CO_2 level when operating at the criteria pollutant major source threshold for NO_x (100 tpy). Using this approach, a boiler operating at a level of 12 ppm NO_x fueled with natural gas would yield CO_2 emissions of approximately 777,000 tpy.
- Another approach would be to establish a CO_2 level that would be equivalent to the Title V extreme non-attainment area major source threshold of 10 tpy. The NO_x 10 tpy level roughly equates to about 100,000 tpy CO_2. Using this level, instead of the much lower 25,000 tpy level, would minimize the impact to stationary sources while staying consistent with the Congressional intent of regulating major sources, and according to EPA's assessment, bring a significant number of new sources into the programs.

Additionally, the Air District staff prepared a summary of their *GHG Prevention of Significant Deterioration/Best Available Control Technology (PSD/BACT) Threshold Analysis* (completed in April 2017) - see Attachment A. For clarification, we have corrected the headings in Table 1, to accurately identify the columns. The data show that if the threshold is decreased by 50,000 metric tons per year CO_2e, Air District staff estimate the number of permits to be processed will ***double*** with only a 10% increase in capture of GHG emissions. The Air District is already struggling to provide timely review of current permit applications due to limited staff and budget constraints. This change is projected to double the number of PSD permits for a very small benefit. **BACWA strongly recommends the Air District support the 75,000 metric ton (or greater) per year CO_2e threshold proposed by the U.S. EPA under the federal program**.

Biogenic vs. Anthropogenic CO_2 Emissions

The Air District explicitly references support for EPA's definition of GHGs that applies toward the threshold in the proposed revisions to Regulation 2, Rule 2. The EPA performed a permit analysis over several years and ultimately decided to focus on *large, fossil-fuel combustion sources,* stating in the Federal Register, Volume 81, No. 191 dated October 3, 2016 (some text is underlined for emphasis):

> "*A second key finding from our review of past permitting actions was that the emissions from large, fossil-fueled combustion units were generally the principle cause for ‘‘anyway sources’’ ... Across all industry categories, we found that ‘‘anyway sources’’ have been triggering PSD primarily because of the addition or modification of combustion units. Most of these projects involved some combination of turbines, boilers, process heaters/furnaces, and stationary IC engines that were principally fired with either diesel fuel or natural or process gas, with smaller numbers of biomass-fueled units. We found that even for a specific sector such as the oil and gas industry, where there are a variety of fugitive emission*

> *sources, combustion emissions still dominate the emission profile and are the primary driver of PSD applicability for new construction and major modification projects.*"

At the June 12th public workshop held in Martinez on the Proposed Revisions, Air District staff stated wastewater digester gas would be considered in the calculation of CO_2e. However, biogenic emissions, like digester gas and landfill gas, are part of the natural carbon cycle and generally do not count towards regulatory requirements. Sources whose CO_2 emissions are largely biogenic, such as landfills and POTWs, would easily exceed any threshold established as part of this proposal, regardless of the facility's size.

We strongly support EPA's decision to focus on fossil-fuel combustion units based on the prevalence of those units as the primary GHG-emitting sources as determined by the EPA's permit analysis. **BACWA recommends the Air District focus on fossil-fuel based combustion sources and:**

> ***"…exclude carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms (including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material).***
>
> ***40 CFR Part 52 Subpart A, Section 52.21(a)(49)(ii)(a)***

Attachment B was provided by BAAQMD staff to illustrate the translation of natural gas usage to GHG emissions. The table references wastewater treatment digester gas in the notes below the table (as shown). In support of the recommendation above to focus on fossil-fuel based combustion sources, **BACWA recommends deleting "digester gas" from the table notes.**

GHG Emissions Reduction and Exposure to Toxics

Regulatory actions may seem effective when each media (air, water, land) is addressed separately, however, deficiencies become evident when regulations are viewed holistically for protecting the overall environment and public health. POTWs are regulated by multiple governmental agencies whose goals for air, water, and land can result in contradictory impacts to the municipal wastewater sector. BACWA previously submitted a letter to BAAQMD (addressed to Christy Riviere, Principal Environmental Planner, June 6, 2014) detailing the impact cross-media issues can have on wastewater treatment plants.

There are increasing concerns about cross-media impacts and the potential operational and financial effects they will have on POTWs that must meet water quality objectives while also maintaining compliance with regulations that support contradictory goals. For example, there are regulatory efforts to reduce GHG emissions (global pollutant) as well as toxic air contaminants (TACs, local pollutant). While the state and BAAQMD are encouraging an increase in digester gas production from the diversion of food waste to POTW digesters to reduce methane emissions at landfills (in turn to generate renewable electricity and/or low carbon transportation fuel), the combustion of the digester gas leads to the generation of formaldehyde, a TAC. If Regulation 2 counts the GHG emissions from the combustion of digester gas toward the BACT threshold, it is more likely to trigger BACT. Both the potential cost to implement BACT and the generation of formaldehyde from the combustion of digester gas threaten the feasibility of diverting organics from landfills to POTWs as a methane reducing strategy under SB 1383. **BACWA recommends BAAQMD exempt projects that contribute toward achieving state goals to reduce GHG emissions through diversion of organic waste from landfills and increase production of**

biogas for generation of renewable energy or fuel.

Thank you for the opportunity to comment on the Proposed Revisions to Regulation 2. We would be happy to discuss any questions regarding these comments. Nohemy Revilla and Randy Schmidt, BACWA AIR Committee Co-Chairs, can be reached at NRevilla@sfwater.org and RSchmidt@centralsan.org, respectively.

Sincerely,

David R. Williams

David R. Williams
BACWA Executive Director

Cc: BACWA Executive Board
Nohemy Revilla, BACWA AIR Committee Co-Chair
Randy Schmidt, BACWA AIR Committee Co-Chair
Courtney Mizutani, BACWA AIR Committee Project Manager
Sarah Deslauriers, BACWA AIR Committee Project Manager

Attachment A

Greenhouse Gas PSD / BACT Threshold Analysis

Staff is proposing to lower the PSD BACT analysis threshold for GHGs from 75,000 to 25,000 metric tons per year CO_2 equivalent (CO_2e).

Background:
In December 2012, the Board of Directors adopted changes to our permitting rules, including Regulation 2, Rule 2, New Source Review (Reg. 2-2). One of the changes to Reg. 2-2 was the addition of a PSD BACT requirement for projects which would result in an increase in of greenhouse gas (GHG) emissions, expressed as CO_2 equivalent, above 75,000 metric tons per year. Because of public concern over GHG emissions and climate change, the Board has directed staff to consider lowering the threshold at which a GHG BACT is triggered.

Permit History and GHG Threshold Selection:
It is impossible to precisely forecast future permit application submittals for GHG sources. The District has not previously calculated GHG emissions associated with permit applications, and therefore we do not have a mechanism in place to track GHG emissions for permit applications. To estimate the number of future permit applications that we expect to receive that would trigger GHG BACT review, staff reviewed historic permitting activity. We looked at permit applications received over the last 10 years to determine an annual average application rate based primarily on combustion sources. We reviewed applications from combustion sources because those represent the vast majority of applications for sources with GHG emissions. For those combustion sources, we calculated the maximum potential GHG emissions based on fuel firing rates. We added GHG emissions for multiple sources within a given application to determine the total GHG emissions associated with that application. We were then able to quantify the number of permit applications and sources associated with a given GHG BACT threshold. Results are summarized in Table 1.

Table 1 – Estimated Number of Additional Sources for Various GHG BACT Thresholds

GHG BACT Threshold ton/yr CO_2e	GHG Emissions mt/year CO2e	% of GHG Emissions	Number of additional GHG BACT sources per year
0	28,310,446	100	488
10000	27,021,774	95	57
25000	25,522,937	90	35
30000	25,088,060	89	31
50000	23,762,711	84	21
75000	22,614,601	80	18

The goal is to select a threshold level that accounts for the majority of GHG emissions, while at the same time not resulting in an unmanageable level of additional permitting workload. While it may be desirable to set the threshold as low as possible, that is not realistic given the additional workload and limited resources available to conduct the additional BACT reviews for GHG sources. Based on the analysis describe above, staff proposes a new lower threshold of 25,000

tons per year because at that level we expect to conduct BACT reviews on new or modified sources that will comprise approximately 90% of new GHG emissions. Although not specifically included in our analysis, we may also receive applications requiring a GHG BACT analysis for additional sources other than combustion equipment. Such sources include but are not limited to landfills, sewage treatment plants, breweries, semiconductor facilities, animal feedlots and natural gas storage. Permit applications for these sources would be in addition to the number of combustion sources that we predict, based on the summary in Table 1.

Attachment B

Natural Gas usage for various CO2e Emission rates

CO2e tons/year	CO2e metric tons/year	MM BTU/yr	MM BTU/hr[1]
2500	2268	42734	4.9
5000	4536	85468	9.8
10000	9072	170937	19.5
20000	18144	341873	39.0
25000	22680	427342	48.8
40000	36288	683747	78.1
50000	45360	854683	97.6
75000	68040	1282025	146.3

(1) assuming 24 hr/day, 365 day/yr operation

emission factors for natural gas combustion[2]			Global warming potential[3]	
CO2	0.05302	MT CO2/MM BTU	CO2	1
CH4	0.9	gram/MM BTU	CH4	25
N2O	0.1	gram/MM BTU	N2O	298
total CO2e factor	**0.0530723**	**MT CO2e/MM BTU**		

(2) emission factors from CARB GHG Verification Training manual - *Mandatory Reporting of Greenhouse Gas Emissions: Instructional Guidance for Operators* (Dec. 2008)

(3) GWP from EPA website - https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Example Sources:

75,000 ton/yr CO2e = 146 MM BTU/hr
Refinery furnace - average size
Asphaltic concrete plant burner
Foundry cupola
Aircraft engine test stand

25,000 ton/yr CO2e = 49 MM BTU/hr
Refinery furnace - small-medium size
Cogen engine at wasterwater treatement~~, digester gas~~
Cogen engine at landfill, landfill gas
Auxiliary boiler - wastewater treatment plant
Boiler - hospital

Does not apply to digester gas per EPA's proposed revisions to the federal Regulation

10,000 ton/yr CO2e = 20 MM BTU/hr
Refinery furnace - smallest
Boiler - light industrial, college
Boiler - hospital
Cogen engine at landfill, wastewater plant - small

5,000 ton/yr CO2e = 10 MM BTU/hr
Coffee roaster
Boiler - space heat
Boiler - small industrial

Refinery Furnaces			MM BTU/hr				
1			25				
2			25				
3			20				
4			374				
5			150				
6			150				
7			33				
8			52				
9			104				
10			55				
11			46				
12			190				
13			225				
14			106				
15			39				
16			31				
17			167				
18			61				
19			66				
20			176				
21			550				
22			25				
23			234				
24			185				
25			234				
26			200				
27			60				
28			234				
29			409				
30			110				
31			139				
32			476				
33			200				
34			220				
35			224				
36			105				
37			105				
38			49				
39			49				
40			32				
41			910				
					ton CO2e/year		
			167	Average	85558		
			20	Min	10249		
			910	Max	466348		