



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS
STATIONARY SOURCE AND CLIMATE IMPACTS COMMITTEE

COMMITTEE MEMBERS

JOHN BAUTERS – CO-CHAIR
TERESA BARRETT – VICE CHAIR
JOHN GIOIA
ERIN HANNIGAN
DAVINA HURT
MARK ROSS

KAREN MITCHOFF – CO-CHAIR
RICH CONSTANTINE
CAROLE GROOM
DAVID HAUBERT
TYRONE JUE

**THIS MEETING WILL BE CONDUCTED UNDER PROCEDURES AUTHORIZED BY
EXECUTIVE ORDER N-29-20 ISSUED BY
GOVERNOR GAVIN NEWSOM**

- **THE PUBLIC MAY OBSERVE THIS MEETING THROUGH THE WEBCAST BY
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ORDER TO RECEIVE THE FULL ZOOM EXPERIENCE, PLEASE MAKE SURE
YOUR APPLICATION IS UP TO DATE**

**MONDAY
MARCH 15, 2021
9:00 A.M.**

AGENDA

1. CALL TO ORDER - ROLL CALL

PLEDGE OF ALLEGIANCE

PUBLIC MEETING PROCEDURE

The Committee Co-Chair shall call the meeting to order and the Clerk of the Boards shall take roll of the Committee members.

This meeting will be webcast. To see the webcast, please visit www.baaqmd.gov/bodagendas at the time of the meeting. Closed captioning may contain errors and omissions and are not certified for their content or form.

***Public Comment on Agenda Items** The public may comment on each item on the agenda as the item is taken up. Members of the public who wish to speak on matters on the agenda for the meeting, will have three minutes each to address the Committee. No speaker who has already spoken on that item will be entitled to speak to that item again.*

Staff/Phone (415) 749-

2. APPROVAL OF THE MINUTES OF DECEMBER 17, 2020

Clerk of the Boards/5073

The Committee will consider approving the draft minutes of the Stationary Source Committee meeting of December 17, 2020.

3. DISCUSSION ON STATIONARY SOURCE AND CLIMATE IMPACTS COMMITTEE MISSION STATEMENT AND SCHEDULE FOR 2021

D. Breen/5041

dbreen@baaqmd.gov

Staff will discuss with the committee its mission statement and schedule for the Stationary Source and Climate Impacts Committee Meetings for 2021.

4. UPDATE ON THE DEVELOPMENT OF AMENDMENTS TO REGULATION 6, RULE 5 (RULE 6-5): PARTICULATE EMISSIONS FROM PETROLEUM REFINERY FLUIDIZED CATALYTIC CRACKING UNITS

G. Nudd/4786

gnudd@baaqmd.gov

The Committee will receive an update on Rule 6-5, Particulate Emissions from Petroleum Refinery Fluidized Catalytic Cracking Units.

5. **SOURCE TEST 101**

E. Ko/4604
eko@baaqmd.gov

The Committee will receive an overview of the Air District's Source Testing Division.

6. **PUBLIC COMMENT ON NON-AGENDA MATTERS**

Members of the public who wish to speak on matters not on the agenda for the meeting, will have three minutes each to address the Committee.

7. **COMMITTEE MEMBER COMMENTS**

Any member of the Committee, or its staff, on his or her own initiative or in response to questions posed by the public, may: ask a question for clarification, make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter or take action to direct staff to place a matter of business on a future agenda. (Gov't Code § 54954.2)

8. **TIME AND PLACE OF NEXT MEETING**

Monday, April 19, 2021 at 9:00 a.m., via webcast pursuant to procedures authorized by Executive Order N-29-20 issued by Governor Gavin Newsom.

9. **ADJOURNMENT**

The Committee meeting shall be adjourned by the Committee Co-Chair.

CONTACT:

MANAGER, EXECUTIVE OPERATIONS
375 BEALE STREET, SAN FRANCISCO, CA 94105
vjohnson@baaqmd.gov

(415) 749-4941
FAX: (415) 928-8560
BAAQMD homepage:
www.baaqmd.gov

- Any writing relating to an open session item on this Agenda that is distributed to all, or a majority of all, members of the body to which this Agenda relates shall be made available at the Air District's offices at 375 Beale Street, Suite 600, San Francisco, CA 94105, at the time such writing is made available to all, or a majority of all, members of that body.

Accessibility and Non-Discrimination Policy

The Bay Area Air Quality Management District (Air District) does not discriminate on the basis of race, national origin, ethnic group identification, ancestry, religion, age, sex, sexual orientation, gender identity, gender expression, color, genetic information, medical condition, or mental or physical disability, or any other attribute or belief protected by law.

It is the Air District's policy to provide fair and equal access to the benefits of a program or activity administered by Air District. The Air District will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by the Air District. Members of the public who believe they or others were unlawfully denied full and equal access to an Air District program or activity may file a discrimination complaint under this policy. This non-discrimination policy also applies to other people or entities affiliated with Air District, including contractors or grantees that the Air District utilizes to provide benefits and services to members of the public.

Auxiliary aids and services including, for example, qualified interpreters and/or listening devices, to individuals who are deaf or hard of hearing, and to other individuals as necessary to ensure effective communication or an equal opportunity to participate fully in the benefits, activities, programs and services will be provided by the Air District in a timely manner and in such a way as to protect the privacy and independence of the individual. Please contact the Non-Discrimination Coordinator identified below at least three days in advance of a meeting so that arrangements can be made accordingly.

If you believe discrimination has occurred with respect to an Air District program or activity, you may contact the Non-Discrimination Coordinator identified below or visit our website at www.baaqmd.gov/accessibility to learn how and where to file a complaint of discrimination.

Questions regarding this Policy should be directed to the Air District's Non-Discrimination Coordinator, Terri Levels, at (415) 749-4667 or by email at tlevels@baaqmd.gov.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

375 BEALE STREET, SAN FRANCISCO, CA 94105

FOR QUESTIONS PLEASE CALL (415) 749-4941

EXECUTIVE OFFICE:

MONTHLY CALENDAR OF AIR DISTRICT MEETINGS

MARCH 2021

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Stationary Source & Climate Impacts Committee	Monday	15	9:00 a.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Administration Committee	Wednesday	17	9:30 a.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Legislative Committee	Wednesday	17	1:00 p.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Mobile Source & Climate Impacts Committee	Thursday	25	9:30 a.m.	Webcast only pursuant to Executive Order N-29-20

APRIL 2021

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Community Equity, Health & Justice Committee	Thursday	1	9:30 a.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Special Meeting	Wednesday	7	8:30 a.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Stationary Source & Climate Impacts Committee	Monday	19	9:00 a.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Administration Committee	Wednesday	21	9:30 a.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Legislative Committee	Wednesday	21	1:00 p.m.	Webcast only pursuant to Executive Order N-29-20
Board of Directors Mobile Source & Climate Impacts Committee	Thursday	22	9:30 a.m.	Webcast only pursuant to Executive Order N-29-20

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairpersons John Bauters and Karen Mitchoff, and Members
of the Stationary Source and Climate Impacts Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 3, 2021

Re: Approval of the Minutes of December 17, 2020

RECOMMENDED ACTION

Approve the attached draft minutes of the Stationary Source Committee (Committee) meeting of December 17, 2020.

DISCUSSION

Attached for your review and approval are the draft minutes of the Stationary Source Committee meeting of December 17, 2020.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Marcy Hiratzka
Reviewed by: Vanessa Johnson

Attachment 2A: Draft Minutes of the Stationary Source Committee Meeting of December 17, 2020

AGENDA: 2A – ATTACHMENT

Draft Minutes – Stationary Source Committee Meeting of December 17, 2020

Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(415) 749-5073

DRAFT MINUTES

Summary of Board of Directors
Stationary Source Committee Meeting
Thursday, December 17, 2020

This meeting was conducted under procedures authorized by executive order N-29-20 issued by Governor Gavin Newsom. Members of the committee participated by teleconference.

1. CALL TO ORDER – ROLL CALL

Stationary Source Committee (Committee) Chairperson John Bauters called the meeting to order at 11:31 a.m.

Present: Committee Chairperson John Bauters; Vice Chairperson Karen Mitchoff; and Directors David Canepa, John Gioia, Tyrone Jue, Nate Miley, Mark Ross, and Jim Spering.

Absent: Directors Carole Groom and Brad Wagenknecht.

Also Present: Board Chairperson Rod Sinks.

2. APPROVAL OF THE MINUTES OF OCTOBER 1, 2020

Public Comments

No requests received.

Committee Comments

None.

Committee Action

Vice Chair Mitchoff made a motion, seconded by Director Spering, to approve the Minutes of October 1, 2020; and the motion carried by the following vote of the Committee:

AYES: Bauters, Gioia, Jue, Miley, Mitchoff, Ross, Sinks, Spering.
NOES: None.
ABSTAIN: None.
ABSENT: Canepa, Groom, Wagenknecht.

3. UPDATE ON THE STATUS OF THE ASSEMBLY BILL (AB) 617 EXPEDITED BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (BARCT) IMPLEMENTATION SCHEDULE RULE DEVELOPMENT EFFORTS

NOTED PRESENT: Director Canepa was noted present at 11:38 a.m.

Victor Douglas, Rule Development Manager, gave the staff presentation *Update on the Status of the AB 617 Expedited BARCT Implementation Schedule*, including: overview; AB 617 expedited BARCT review and schedule; Rule 8-5 (Organic Liquids Storage Tanks); Rule 8-8 (Petroleum Wastewater Treating); Rule 8-18 (Refinery Heavy Liquids Leaks); Rule 9-13 (Portland Cement Manufacturing); Rule 9-14 (Coke Calcining Operations); Rule 6-5 (Refinery Fluidized Catalytic Cracking Units (FCCU)); and conclusions.

Then, Dr. Phil Martien, Director of Assessment, Inventory, and Modeling, gave the staff presentation *Update on the Status of the AB 617 Expedited BARCT Implementation Schedule – Equity and Health Benefits and Assessment for Rule 6-5*, including: modeled Particulate Matter (PM)_{2.5} from Chevron refinery; study population; population exposure; exposure per capita; health impacts and valuations; and cost-benefit comparisons.

Public Comments

Public comments were given by Dr. Bret Andrews; Gail McLaughlin; Nick, United Steelworkers Local 5; Dave Bleckinger, PBF Energy; Laurie Mintzer, Chevron; Andres Soto, Communities for a Better Environment (CBE); Jed Holtzman, 350 Bay Area; Dr. Steve Rosenblum, Palo Alto resident; Dr. Raymond Tompkins, African-American Community Health Equity Council; Christopher Palacio, United Steelworkers; LaDonna Williams, All Positives Possible; Kevin Olson, Chevron; Jeff Killbreth, Richmond resident; Kathy Kerridge, Good Neighbors Steering Committee in Benicia; Andrew Solak, PBF Energy; Eduardo Martinez, Richmond City Council; Ernesto Arevalo, CBE; Amanda Hunter Johnson, El Cerrito resident; Dr. Amanda Nelsen; Steve Nadel, Sunflower Alliance; Dr. Allison Ford; Patrick Owens; Daniel Sakaguchi, CBE; Illana Weisman, 350 Contra Costa; Clair Brown, Richmond resident; Greg Karras, Community Energy reSource; Domonique Brooks, Healing Impact Communities; Richard Gray, 350 Bay Area; Zolboo Namkhaidorj, CBE; Dr. Ashley McClure; Nory Griffin; Halimah, CBE; Charles Davidson, Hercules resident; Jan Warren, Interfaith Climate Action Network of Contra Costa County; Miguel Diaz, Richmond High School; Rochelle Towers, 1000 Grandmothers for Future Generations; Lonnie, Bay View Hunters Point resident; Jackie Garcia, 350 Contra Costa; Floy Andrews, Richmond resident; Dr. Jeffrey Mann; Han Remis; Paula Kapfenstein; Pat Dodson; Jessica Schieber, Martinez refinery; Alissa; Maureen Brennen; Bettina Hughes; and Susan Pinner.

Committee Comments

The Committee and staff discussed the new limits on sulfur dioxide in the draft amendments to Rule 6-5 (Refinery FCCUs), and the proposed adoption schedule; whether a community emission

reduction plan will be initiated in East Oakland; how the Air District calculated industrial capital costs to implement the draft amendments to Rule 6-5, and challenges in collecting the refineries' actual costs; Industry's request that the Air District utilizes U.S. Environmental Protection Agency "Other Test Method 37" instead of "Method 202 – Condensable PM" to estimate total PM from petroleum refinery FCCUs; disputes about the PM population exposure between Hispanic and black residents who live near the Chevron refinery in Richmond; how much revenue the Contra Costa County refineries give the County; control mechanisms that are in place for FCCUs in the South Coast Air Quality Management District; whether Air District staff will hold the requested public workshop for Rule 6-5 draft amendments; claims that modeling results are not consistent with monitoring data for the Chevron refinery; the dividend growth of the Chevron refinery; the difference between monitoring and modeling; whether the Air District can adopt and impose regulations specific to individual refineries; and how the closure of the PBF Energy refinery in Martinez might impact the Richmond refinery.

Committee Action

None; receive and file.

4. PUBLIC COMMENT ON NON-AGENDA MATTERS

Public comments were given by Andres Soto, CBE; David Page; and Rhoda Fry, Cupertino resident.

5. COMMITTEE MEMBER COMMENTS

None.

6. TIME AND PLACE OF NEXT MEETING

At the conclusion of the meeting, it was announced that the next meeting would be at the Call of the Chair. After the meeting adjourned, the Stationary Source Committee became part of Stationary Source and Climate Impacts Committee. These minutes are to be considered for approval at the meeting of the Stationary Source and Climate Impacts Committee, which will meet for the first time on Monday, March 15, 2021, at 9:00 a.m., via webcast, pursuant to procedures authorized by Executive Order N-29-20 issued by Governor Gavin Newsom.

7. ADJOURNMENT

The meeting adjourned at 2:40 p.m.

Marcy Hiratzka
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairpersons John Bauters and Karen Mitchoff, and Members
of the Stationary Source and Climate Impacts Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 4, 2020

Re: Discussion on Stationary Source and Climate Impacts Committee Mission Statement
and Schedule for 2021

RECOMMENDED ACTION

Recommend the Committee:

1. Approve the calendar for its 2021 Meeting Schedule.

BACKGROUND

At its February 3, 2021, the Board of Directors merged elements of its “Stationary Source” and “Climate Protection Committees” to form the new “Stationary Source and Climate Impacts Committee.”

The description of the Stationary Source Committee previously stated that it “...*reviews and recommends stationary source policies, issues, and programs related to air quality management plans, air quality and economic modeling, permitting, compliance, small business assistance, toxics, source education, rule development, and grants. The Committee also advises the Board of Directors on the Air District’s position on all regulations that affect stationary sources...*”

The description of the Climate Protection Committee stated that it “...*reviews the Air District’s climate protection policies, activities, and funding, and makes applicable recommendations to the Board of Directors. The committee stays informed on current and proposed climate protection actions by local, regional, state, federal, and international agencies and organizations...*”

DISCUSSION

As part of the formation of this new Committee, the Board added the following to the Air District’s Administrative code to define its mission:

The Stationary Source and Climate Impacts Committee will consider and recommend policies to the Board of Directors relating to stationary sources. The Committee shall recommend positions to the Board of Directors on stationary source policy issues affecting the implementation of the

State and Federal Air Quality Management Plans and key planning policy issues such as federal and State Air Quality Management Plan development and air quality and economic modeling. The Committee shall review and make recommendations to the Board of Directors regarding major stationary source programs including: permitting, compliance, small business assistance, toxics, source education, and rule development. The Committee shall recommend to the Board of Directors positions concerning federal and state regulations that affect stationary sources. The Committee shall recommend policies to the Board of Directors for disbursement of supplemental environmental project grants.

The Committee will also consider and recommend to the Board of Directors policies and positions of the District relating to climate protection activities and funding relative to stationary sources. The Committee will keep itself informed on actions and proposed actions by local, regional, state, federal, and international agencies and organizations relating to climate protection relative to stationary sources.

As part of its first meeting, the newly constituted Committee will review its mission statement and a proposed schedule for meetings for 2021.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Damian Breen

Attachment 3A: Proposed 2021 Stationary Source and Climate Impacts Committee Workplan

Proposed 2021 Stationary Source and Climate Impacts Committee Workplan

Meeting Schedule	Topics
March	<ul style="list-style-type: none"> • Source Test 101 • Update on Amendments to Regulation 6, Rule 5: Particulate Emissions from Petroleum Refinery Fluidized Catalytic Cracking Units (Rule 6-5)
April	<ul style="list-style-type: none"> • Building De-Carbonization Discussion • Overview of Datacenters in the Bay Area
May	<ul style="list-style-type: none"> • Update on Potential Modifications to the Air District’s Permitting Program • Update on the Air District’s CEQA Thresholds
June	<ul style="list-style-type: none"> • Update on the Implementation of Regulation 11, Rule 18: Reduction of Risk from Air Toxic Emissions at Existing Facilities (Rule 11-18) • Next Steps on the Particulate Matter Strategy
July	<ul style="list-style-type: none"> • Update on Amendments to Regulation 6, Rule 5: Particulate Emissions from Petroleum Refinery Fluidized Catalytic Cracking Units (Rule 6-5)
August – No Meeting	
September	<ul style="list-style-type: none"> • Update on Building De-Carbonization Efforts • Update on Amendments to Regulation 8, Rule 5: Storage of Organic Liquids (Rule 8-5);
October	<ul style="list-style-type: none"> • Update on the South Bay Odor Study • Update on Methane Strategy Implementation • F-Gas Strategy Discussion
November	<ul style="list-style-type: none"> • Updates on Rules from Community Emission Reduction Plans
December	<ul style="list-style-type: none"> • Update on the Implementation of Regulation 11, Rule 18: Reduction of Risk from Air Toxic Emissions at Existing Facilities (Rule 11-18) • Overview of Bay Area Woodsmoke Impacts • Update on Amendments to Regulation 8, Rule 8: Wastewater Collection and Separation Systems (Rule 8-8) • Update on Amendments to Regulation 8, Rule 18: Equipment Leaks (Rule 8-18)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairpersons John Bauters and Karen Mitchoff, and Members
of the Stationary Source and Climate Impacts Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 4, 2021

Re: Update on the Development of Amendments to Regulation 6, Rule 5 (Rule 6-5):
Particulate Emissions from Petroleum Refinery Fluidized Catalytic Cracking Units

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

California Assembly Bill (AB) 617 directed local air districts to adopt an expedited schedule for implementation of Best Available Retrofit Control Technology (BARCT) at industrial Cap-and-Trade sources. In December 2018, the Air District Board of Directors adopted the AB 617 Expedited BARCT Implementation Schedule which identified several potential rule development efforts to further reduce emissions of criteria pollutants at these sources. One of the potential rule development efforts was amending Rule 6-5 to further reduce particulate matter (PM) emissions from petroleum refinery fluidized catalytic cracking units (FCCUs).

Air District staff are currently developing draft amendments to Rule 6-5 to address emissions of particulate matter, including condensable particulate matter, from petroleum refinery FCCUs. FCCUs are some of the largest individual sources of PM emissions in the San Francisco Bay Area, and further reductions of these emissions are needed to ensure progress towards attainment of state and national ambient air quality standards and to provide cleaner air and public health benefits.

DISCUSSION

Air District staff released draft amendments to Rule 6-5 and an Initial Staff Report in May 2020, for public review and comment. Staff received public comments on the draft amendment materials and presented updates on the development of amendments to Rule 6-5 to the Stationary Source Committee on June 17, 2020. Following the release of the draft amendments in May 2020, staff further evaluated other potential control options, including a more stringent potential control option for assessment and consideration. Staff presented additional information on these potential control options to the Stationary Source Committee in July, October, and December 2020.

Staff released further draft amendments and workshop materials on the potential control options in January 2021. The workshop materials presented information on two versions of draft amendments to Rule 6-5 – the draft amendments released in May 2020 and the draft amendments reflecting a more stringent potential control option. These are referred to as Control Scenario A and Control Scenario B, respectively. Control Scenario A includes limits that are achievable through ESP (electrostatic precipitator), feed hydrotreatment, and catalyst additive controls. Control Scenario B includes more stringent limits that are achievable through WGS (wet gas scrubbing) controls. The workshop materials include information about the draft amendments and estimates potential impacts under each control scenario, which are summarized in the tables below. Further details on these draft amendments and potential impacts are included in the Workshop Report, which is available on the Air District’s webpage for amendments to Rule 6-5 at <https://www.baaqmd.gov/reg6rule5>.

Draft Amendment Limits

Draft Limit	Control Scenario A	Control Scenario B
Ammonia (NH ₃)	10 ppm	10 ppm
Sulfur dioxide (SO ₂)	25 ppm (365-day average) 50 ppm (7-day average)	25 ppm (365-day average) 50 ppm (7-day average)
Total PM ₁₀	0.020 gr/dscf	0.010 gr/dscf
Effective date	January 1, 2023	January 1, 2026

Preliminary Estimates of Potential Impacts

Impact Type	Control Scenario A	Control Scenario B
Affected Refineries	Chevron Products Richmond PBF Martinez Refinery	Chevron Products Richmond PBF Martinez Refinery Marathon Martinez Refinery*
Anticipated Controls	Improvement/expansion of existing controls: Electrostatic precipitator (ESP), feed hydrotreatment, catalyst additives	Installation of wet gas scrubbing (WGS) system
PM ₁₀ Emission Reductions	250 tons per year	493 tons per year*
Total Capital Costs	\$110 million	\$732 million*
Total Annualized Costs	\$19 million per year	\$116 million per year*
Cost Effectiveness	\$75,000 per ton	\$236,000 per ton*
Compliance Cost as a Percentage of Individual Facility Est. Profits	1.6% – 8.1%	13.7% – 25.8%*
Socioeconomic Impacts	Not Significant	<u>Significant</u> (Potential for job losses and/or fuel price increases)
Environmental Impacts	<u>Significant</u> air quality impacts during construction	<u>Significant</u> air quality impacts during construction; <u>Significant</u> water use during operation

*Note: These figures include impacts that would be anticipated at the Marathon Martinez Refinery under normal operations of the FCCU. The Marathon Martinez Refinery has been idled since April 2020, and the company has announced there are currently no plans to restart normal refining operations.

In addition, staff presented results from modeling of potential PM exposure reductions and health benefits under the two control scenarios for Chevron Products Richmond and PBF Martinez Refinery. The following table summarizes the analyses for the estimated reductions in annual excess mortality and valuation of health benefits for Control Scenario A and Control Scenario B for each of these refineries.

**Estimated Annual Excess Mortality Reduction and Health Benefits Valuation for
Chevron Richmond and PBF Martinez**

	Control Scenario A	Control Scenario B
Chevron Products Richmond		
Reduction in annual excess mortality	0.7–1.5	1.2–2.7
Estimated annual valuation of health benefits	\$6.8–15 million	\$12–27 million
PBF Martinez Refinery		
Reduction in annual excess mortality	1.0–2.2	1.4–3.2
Estimated annual valuation of health benefits	\$10–23 million	\$14–32 million

Staff held a virtual public workshop on February 4, 2021. Slides presented during this public workshop are provided as Attachment 4A and are available on the Air District’s webpage at <https://www.baaqmd.gov/reg6rule5>. Staff received many comments on a variety of topics, with several commenters expressing:

- Support for the most stringent requirements and use of wet gas scrubbing systems;
- Importance of reducing health impacts in the Bay Area and fenceline communities;
- Concern for potential job losses and economic impacts;
- Concern for environmental impacts of water use; and
- Support for a balance between environmental benefits and economic impacts.

In addition to comments received during the public workshop, staff also received 69 written comments. A summary of the comments received is included in Attachment 4B.

In response to the comments received, staff is revising the draft amendments to better address the concerns raised and speed implementation of emissions reductions while retaining strict emission limits. This new regulatory concept and the revised draft amendments are intended to accomplish the following goals:

- Establish a long-term path to require the most stringent feasible limits and controls on FCCU particulate matter emissions;
- Provide additional flexibility and opportunity for facilities to potentially mitigate negative economic impacts; and
- Require particulate matter reductions in the near-term to provide public health benefits and progress towards attainment of ambient air quality standards as soon as possible.

Staff anticipates continuing stakeholder outreach and engagement on these concepts in early spring 2021, followed by the release of new draft amendments and materials prior to a public workshop in late spring 2021. Following the public comment period on these materials, staff anticipates preparing proposed rule amendments and a Board Hearing package for consideration by the Air District Board of Directors in fall of this year.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: David Joe
Reviewed by: Elizabeth Yura

Attachment 4A: Presentation – Public Workshop on Draft Amendments to Rule 6-5, February 4, 2021

Attachment 4B: Summary of Written Comments Received on Workshop Package for Draft Amendments to Rule 6-5




BAY AREA
AIR QUALITY
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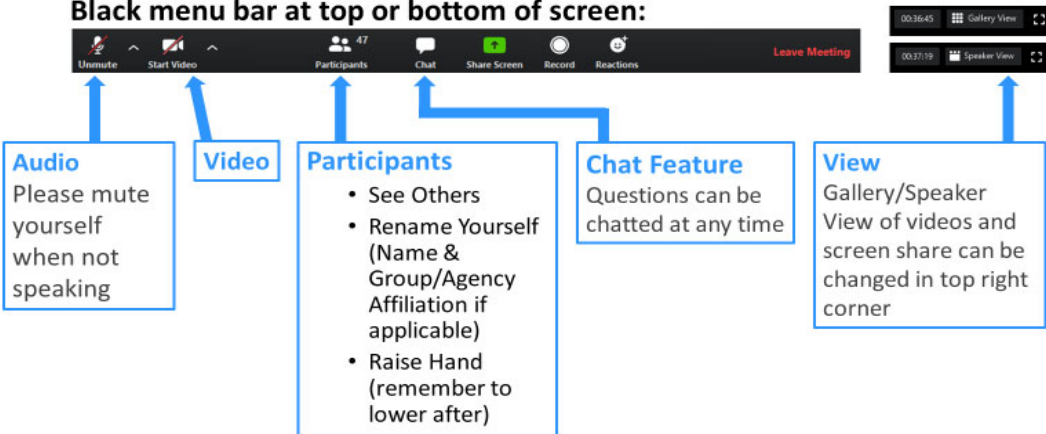
Public Workshop on Draft Amendments to Rule 6-5

Virtual Public Workshop
February 4, 2021

1

How to Use  Video Conferencing

Black menu bar at top or bottom of screen:



Audio
Please mute yourself when not speaking

Video

Participants

- See Others
- Rename Yourself (Name & Group/Agency Affiliation if applicable)
- Raise Hand (remember to lower after)

Chat Feature
Questions can be chatted at any time

View
Gallery/Speaker View of videos and screen share can be changed in top right corner

Note: The Air District will be recording this public workshop

Public Workshop on Rule 6-5 Amendments
February 4, 2021

Bay Area Air Quality Management District

2

Technical Assistance



- If you need technical assistance, please use the chat function and direct your question to “**Jennifer – Tech Support**”
- You can also contact Jennifer via phone, text or email at:
- (650) 784-0107 or jelwell@baaqmd.gov

3

Welcome and Opening Remarks



Veronica Eady
Senior Deputy Executive Officer of Policy & Equity
Bay Area Air Quality Management District

4

Virtual Participation Principles



- **One** person speaks at a time.
- Be **respectful** of one another's opinions.
- Please **mute** yourself when you're not speaking.
- **Share video** so we can stay visually connected.
- Technology happens – please be **flexible and patient**.
- Remember this is just one meeting in a longer **process**.

5

Workshop Agenda



- Introductory poll
- Staff presentation
- Public input
 - Breakout session
 - Questions and comments
- Closing and next steps

6

Polling Exercise



We have received many questions, concerns and comments up to this point. Some of the most common sentiments are listed below. **Which one(s) do you identify with?**

- **I support the most stringent wet gas scrubbing technology**
- **I am concerned about potential economic impacts**
- **I am not sure/I need more information**

7



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Staff Presentation on Draft Amendments to Rule 6-5

Virtual Public Workshop
February 4, 2021

David Joe, PE
Assistant Manager – Rule Development

Phil Martien, PhD
Director – Assessment, Inventory, & Modeling Division

8

Presentation Outline



- Background
- Draft Amendments
 - Control Scenario A
 - Control Scenario B
- Preliminary Estimates of Impacts
 - Emission reductions
 - Compliance costs
 - Socioeconomic impacts
 - Environmental impacts
 - Health impacts
- Next steps and process

9

Background



- Fluidized Catalytic Cracking Units (FCCUs) convert heavy components of crude oil into gasoline and high-octane products
- Large source of particulate matter (PM) emissions

Refinery	FCCU PM₁₀ Emissions
Chevron Products Richmond	245 TPY
PBF Martinez Refinery	309 TPY
<i>Marathon Martinez Refinery</i>	<i>190 TPY</i>
Valero Benicia Refinery	83 TPY
TPY = tons per year	

10

Background



- Air District currently developing amendments to Rule 6-5
- Identified two potential control options to reduce PM from FCCUs
- Released workshop package with draft amendments for both control options and information on potential impacts

11

Draft Amendments Summary



Pollutant	Control Scenario A	Control Scenario B
Ammonia (NH₃)	10 ppm	10 ppm
Sulfur dioxide (SO₂)	25 ppm (365-day average) 50 ppm (7-day average)	25 ppm (365-day average) 50 ppm (7-day average)
Total PM₁₀	0.020 gr/dscf	0.010 gr/dscf
Effective date	January 1, 2023	January 1, 2026
ppm = parts per million gr/dscf = grains per dry standard cubic foot		

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Affected Refineries



Impact	Control Scenario A	Control Scenario B
Affected refineries	Chevron Products Richmond PBF Martinez Refinery	Chevron Products Richmond PBF Martinez Refinery <i>Marathon Martinez Refinery</i>
Anticipated controls	Improvement/expansion of existing controls: ESP, Feed Hydrotreatment, Catalyst Additives	Installation of new WGS
ESP = electrostatic precipitator WGS = wet gas scrubber		

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Preliminary Estimates of Impacts



- **Emission reductions:** Reductions in pollutant emissions
- **Compliance costs:** Costs for installing and operating controls
- **Cost effectiveness:** Costs per ton of reduction
- **Socioeconomic impacts:** Economic impacts, job losses, consumer impacts
- **Environmental impacts:** Impacts from installation or use of controls
- **Health impacts:** Health benefits associated with reduced pollution

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Emissions and Cost Impacts Control Scenario A



Refinery	PM ₁₀ Reductions	Capital Cost	Total Annualized Cost	Cost Effectiveness
Chevron Richmond	80 TPY	\$30 MM	\$4.4 MM/year	\$55,300/ton
PBF Martinez	170 TPY	\$80 MM	\$14 MM/year	\$84,900/ton
<i>Marathon Martinez</i>	–	–	–	–
TPY = tons per year MM = million				

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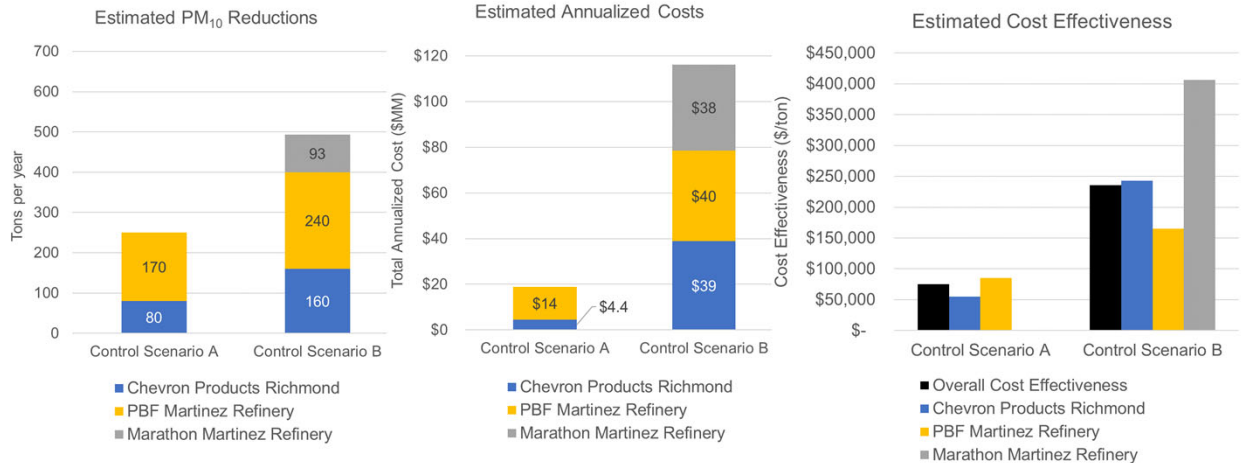
Emissions and Cost Impacts Control Scenario B



Refinery	PM ₁₀ Reductions	Capital Cost	Total Annualized Cost	Cost Effectiveness	Incremental Cost Effectiveness
Chevron Richmond	160 TPY	\$241 MM	\$39 MM/year	\$239,600/ton	\$423,400/ton
PBF Martinez	240 TPY	\$255 MM	\$40 MM/year	\$165,000/ton	\$359,400/ton
<i>Marathon Martinez</i>	<i>93 TPY</i>	<i>\$235 MM</i>	<i>\$38 MM/year</i>	<i>\$406,400/ton</i>	–
TPY = tons per year MM = million					

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Emissions and Cost Impacts



Public Workshop on Rule 6-5 Amendments
February 4, 2021

Bay Area Air Quality Management District

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Socioeconomic Impacts



- Significant impacts expected when costs exceed 10% of net income
- Potential labor reductions or increased fuel pricing

Refinery	Estimated Annual Net Income (2019)	Control Scenario A		Control Scenario B	
		Compliance Cost (% of Income)	Potential Labor Impacts	Compliance Cost (% of Income)	Potential Labor Impacts
Chevron Richmond	\$282.8 MM	1.6%	N/A	13.7%	62 jobs
PBF Martinez	\$177.7 MM	8.1%	N/A	22.3%	128 jobs
Marathon Martinez	\$146.5 MM	—	—	25.8%	136 jobs

MM = million

Public Workshop on Rule 6-5 Amendments
February 4, 2021

Bay Area Air Quality Management District

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Environmental Impacts



- Substantial water usage for wet gas scrubbing
- Approximately 400,000 gallons per day for each system
- Technologies and designs available to reduce water impacts, but with increased costs and complexity

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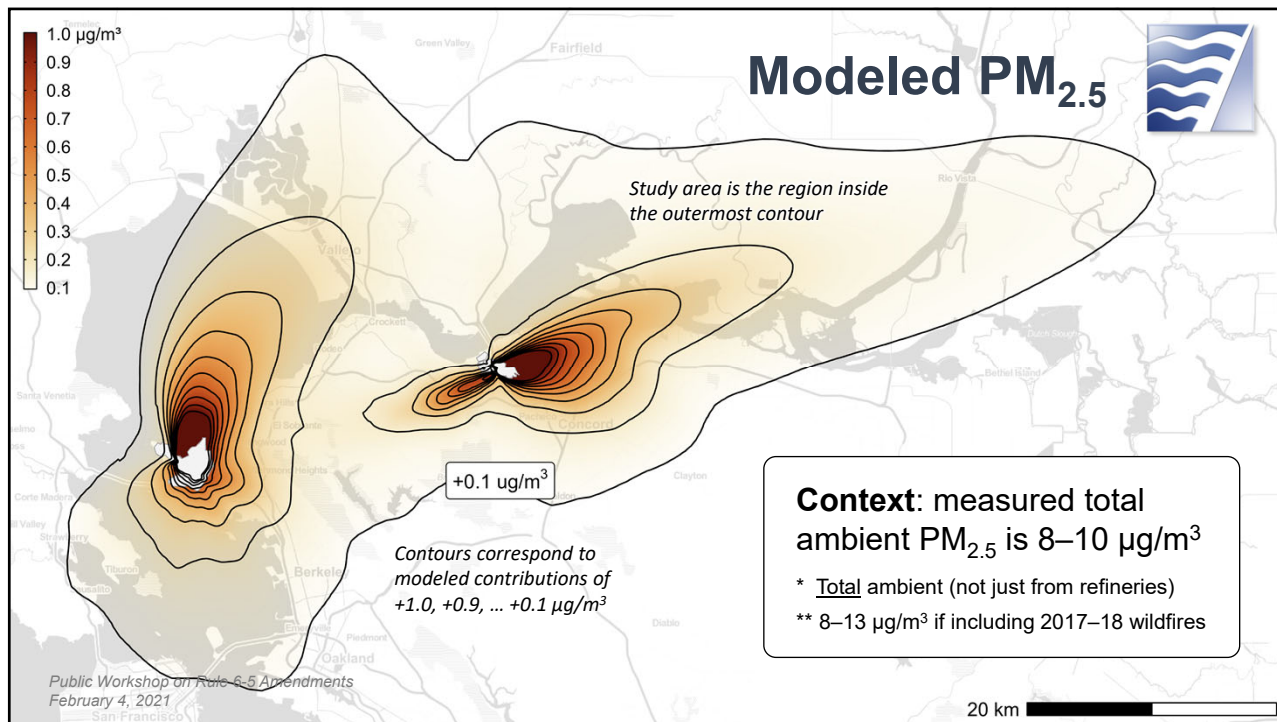
Health Impact Assessment



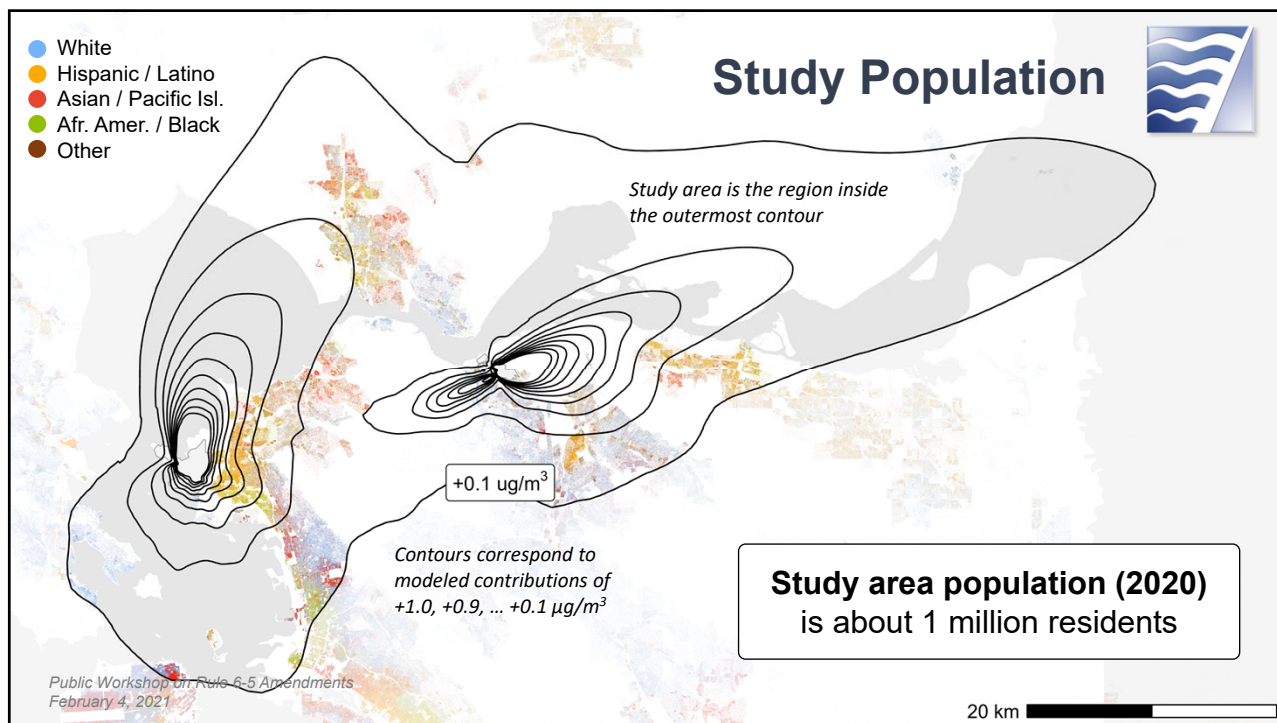
Information on:

- Localized PM_{2.5} impacts from Chevron and PBF
- Equity, health, and Rule 6-5 benefits

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PM_{2.5} Exposure Per Capita by Source and Scenario



Disparities in Exposure

- African-American / Black and Hispanic / Latino residents are exposed to more PM_{2.5} from Chevron in all scenarios

Sources other than FCCU

- Drive these disparities
- Remain significant across all modeled scenarios



Base = Baseline; Scenario A = 0.020 gr/dscf; Scenario B = 0.010 gr/dscf
 Darker colors = Fluidized Catalytic Cracking Unit (FCCU) impacts
 Bar heights = total impacts (FCCU + Non-FCCU), in µg/m³

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Health Impacts and Valuations (Chevron)



Estimated Baseline Health Impact from Modeled Sources (Annual)		Valuation ¹ (Annual)	Scenario A	Scenario B
Cardiovascular	0.5–4.3 heart attacks	\$63k–600k	-13%	-22%
	1.0 hospital admissions	\$47k	-13%	-22%
Restricted Activity	4,800 days	\$360k	-12%	-21%
Lost Work	820 days	\$190k	-12%	-21%
Asthma	200 exacerbations ³	\$12k	-12%	-21%
	4 emergency room visits	\$2k	-12%	-21%
	0.1 hospital admissions	\$1k	-12%	-20%
Respiratory Illness²	140 upper tract ³	\$5k	-12%	-20%
	100 lower tract ³	\$2k	-12%	-20%
	8 bronchitis ³	\$4k	-12%	-20%
	0.2 chronic lung disease	\$5k	-12%	-21%
Mortality	5.1–11.6 deaths ⁴	\$52.5M–118M	-13%	-23%
			\$6.8M to \$15.2M/yr	\$12.2M to \$27.4M/yr



¹ Conventional EPA valuations, in 2015 US dollars
² Other than asthma
³ Subset of pediatric (≤18 years)
⁴ Including infant mortality

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Health Impacts and Valuations (PBF)



Estimated Baseline Health Impact from Modeled Sources (Annual)		Valuation ¹ (Annual)	Scenario A	Scenario B
Cardiovascular	0.3–2.4 heart attacks	\$37k–350k	-35%	-50%
	0.6 hospital admissions	\$26k	-35%	-50%
Restricted Activity	2,700 days	\$200k	-35%	-50%
Lost Work	460 days	\$100k	-35%	-50%
Asthma	110 exacerbations ³	\$7k	-35%	-50%
	2 emergency room visits	\$1k	-35%	-50%
	<0.1 hospital admissions	\$1k	-35%	-50%
Respiratory Illness²	80 upper tract ³	\$3k	-35%	-50%
	50 lower tract ³	\$1k	-35%	-50%
	4 bronchitis ³	\$2k	-35%	-50%
	0.1 chronic lung disease	\$3k	-35%	-50%
Mortality	2.8–6.3 deaths ⁴	\$28.8M–64.9M	-35%	-50%
			\$10.1M to \$22.7M/yr	\$14.4M to \$32.4M/yr



¹ Conventional EPA valuations, in 2015 US dollars
² Other than asthma
³ Subset of pediatric (≤18 years)
⁴ Including infant mortality

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Cost-Benefit Comparisons



Facility	Scenario	Proposed Limit	Projected Costs	Modeled Benefits ^{1,2}
Chevron	A	0.020 gr/dscf	\$4.4M/yr	\$6.8M to \$15M/yr
	B	0.010 gr/dscf	\$39M/yr	\$12M to \$27M/yr
PBF	A	0.020 gr/dscf	\$14M/yr	\$10M to \$23M/yr
	B	0.010 gr/dscf	\$40M/yr	\$14M to \$32M/yr

¹ Based on conventional US EPA valuations of selected health impacts.
² Valuations are in 2015 US dollars, calculated using the US EPA BenMAP system.

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Rule Development Process



- Draft amendments are available for public review and comment
- Consider and evaluate comments and input received
- Staff may solicit further comments and input on additional materials or drafts
- Final proposed amendments
 - Public comment period
 - Considered for adoption by the Air District Board of Directors at a Public Hearing

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Further Comments and Questions



Comments and Questions

- Comments accepted through March 1, 2021
- Comments received will be posted to website
- Staff available to discuss or answer questions

David Joe, PE
Rule Development
djoe@baaqmd.gov

Phil Martien, PhD
Assessment, Inventory, & Modeling Division
pmartien@baaqmd.gov

Materials and Information

<https://www.baaqmd.gov/reg6rule5>

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Breakout Session



Small Group Discussions

Take a few moments to think about which you feel would be the most appropriate option to bring to the Air District Board of Directors.

1. Control Scenario A (PM₁₀ limit of 0.020 gr/dscf, achievable through ESP controls)
2. Control Scenario B (PM₁₀ limit of 0.010 gr/dscf, achievable through WGS controls)
3. Another option not presented or undecided

Note: The Air District will be recording this public workshop

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Technical Assistance



- In just a moment you will receive an invitation to join a breakout room
- Click join to enter the breakout room and wait for your facilitators
- For technical support contact: Jennifer Elwell at:
- (650) 784-0107 or jelwell@baaqmd.gov

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Breakout Session Report Out

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Question & Answer Session

- Please mute yourself when you're not speaking
- Please raise your hand if you wish to speak and wait for the facilitator to let you know when you can unmute yourself and speak
- One person speaks at a time
- Be respectful of one another

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Closing and Next Steps



Comments and Questions

- Materials available at: <https://www.baaqmd.gov/reg6rule5>
- Comments accepted through March 1, 2021
- Comments received will be posted to website
- Staff available to discuss or answer questions

David Joe, PE
Rule Development
djoe@baaqmd.gov

Phil Martien, PhD
Assessment, Inventory, & Modeling Division
pmartien@baaqmd.gov

Next Steps

- Consider and evaluate comments
- Solicit further comments and feedback as needed
- Proposed amendments and public comment opportunity
- Public Hearing for consideration by Board of Directors

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Workshop Evaluation



The Air District Wants Your Feedback!

Help us improve our workshops and rule development process by completing this short survey in the link below.

<https://www.surveymonkey.com/r/HYWFCG8>

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SUMMARY OF WRITTEN COMMENTS RECEIVED ON WORKSHOP PACKAGE FOR DRAFT AMENDMENTS TO RULE 6-5

Air District staff received a total of 69 written public comments on workshop materials for draft amendments to Regulation 6, Rule 5: Particulate Emissions from Petroleum Refinery Fluidized Catalytic Cracking Units. A high-level overview of the comments received is included below.

Support for individual control scenarios or other regulatory options

- Commenters expressed support for Control Scenario B (imposing the most stringent limits achievable through the installation and operation of wet gas scrubbing controls).
- Commenters expressed support for solutions to balance air quality improvements and negative economic impacts.
- Commenters expressed support for other solutions to reduce overall PM from refineries.

Importance of reducing health impacts and environmental justice/equity issues

- Commenters expressed that the goal of reducing health impacts from air pollution and particulate matter should be the main consideration in the development and adoption of regulatory requirements.
- Commenters expressed the importance of improving health outcomes in historically overburdened populations and environmental justice communities

Estimated compliance costs

- Commenters questioned the accuracy of Air District compliance cost estimates and stated that actual costs would be much lower than those estimated.
- Commenters questioned the accuracy of Air District compliance cost estimates and stated that actual costs would be much higher than those estimated.
- Commenters stated that site-specific considerations and feasibility constraints would add substantial costs that are not included in the Air District estimates.

Estimated emissions and emission reductions

- Commenters questioned the validity and accuracy of emission estimates.
- Commenters stated that emission reductions that have already been achieved at Chevron Products Richmond are not being accounted for in the emission estimates.

Potential socioeconomic impacts and employment reduction/fuel price increases

- Commenters stated that potential socioeconomic impacts are underestimated.
- Commenters stated that potential socioeconomic impacts are overestimated.
- Commenters stated that due to the amount of staff needed to continue refinery operations, potential job losses estimated by the Air District would not occur
- Commenters stated that potential fuel price increases are small compared to potential benefits of emission reductions.
- Commenters questioned the methods used for evaluating and determining potentially significant socioeconomic impacts.
- Commenters stated that costs from risks of catastrophic incidents associated with potential electrostatic precipitator fires and/or explosions should be considered in economic analyses.

- Commenters expressed concern over potential shifts in fuels production to other areas with less environmental regulations, increasing overall environmental impacts.
- Commenters suggested that the amendments include considerations for financial hardships.
- Commenters suggested that installation of wet gas scrubbing controls would result in job growth.

Potential environmental impacts

- Commenters expressed concern over the high water usage of wet gas scrubbing.
- Commenters questioned the amount of water that would be required by wet gas scrubbing, and stated that water use is overestimated.
- Commenters expressed concern about the hazard of potential fire and/or explosion associated with operation of electrostatic precipitators, and stated that potential public safety and economic impacts from a catastrophic incident should be considered in cost analyses.
- Commenters expressed concern that environmental impacts of control equipment have not been sufficiently addressed.

Health impacts assessments

- Commenters stated that emission reductions would achieve additional public health benefits beyond those analyzed by the Air District assessment.
- Commenters expressed concerns over uncertainties in the health impacts modeling.
- Commenters expressed concerns over inputs and assumptions used in the health impacts modeling.
- Commenters stated that emission reductions that have already been achieved at Chevron Products Richmond are not being accounted for in the health impacts assessment.

Implementation timeline

- Commenters stated implementation timelines are too long, and controls can be installed much sooner than the draft effective date.
- Commenters stated implementation timelines are too short, and controls cannot be feasibly designed, permitted, and installed by the draft effective date.

Testing methods and requirements

- Commenters questioned the validity of source test methods included in the draft amendments.
- Commenters expressed concern over the source testing requirements under the draft amendments, and stated that testing requirements are overly burdensome.
- Commenters expressed concern over testing and monitoring performed by the industrial facilities.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairpersons John Bauters and Karen Mitchoff, and Members
of the Stationary Source and Climate Impacts Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 4, 2021

Re: Source Test 101

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

Source testing is a way to measure emissions of pollutants from industrial facilities, usually from a stack or vent. Data from source testing is used to support many of the Air District's programs, including permitting, health risk assessments, inspections, emission inventory and rule development.

DISCUSSION

This presentation will be an introduction to source testing to provide background that will be relevant for upcoming discussions and decisions for the Board of Directors. Staff will present an overview of the Air District's source testing work, including:

- Types of sources and pollutants tested
- Basic source testing methodology
- How is data used and shared
- Assessing new measurement technology and methods

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Elaine Ko and Jerry Bovee
Reviewed by: Ranyee Chiang