350 Bay Area
Alameda Interfaith Climate Action Network
Benicians for a Safe and Health Community
Citizen Air Monitoring Network
Communities for a Better Environment
Crockett-Rodeo United to Defend the Environment
Good Neighbor Steering Committee — Benicia
Greenaction for Health and Environmental Justice
Idle No More SF Bay
Interfaith Climate Action Network of Contra Costa County
Richmond Progressive Alliance
Rodeo Citizens Association
Sierra Club San Francisco Bay Chapter
Stand.Earth
Sunflower Alliance
West Marin Standing Together

BY ELECTRONIC MAIL

17 June 2019

Jack Broadbent, Air Pollution Control Officer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Request for Action Now to Prepare Environmental Health and Justice-critical Petroleum Refinery $PM_{2.5}$ Emission Reduction Protections for Adoption As Soon As Practicable

Dear Mr. Broadbent,

On behalf of 16 organizations we request that you publish a schedule specifying public emission control rule development activities by the Bay Area Air Quality Management District (BAAQMD) to begin forthwith for each of these long-promised protections from deadly oil refinery $PM_{2.5}$ emissions:

Fluid Catalytic Cracking Unit (FCCU) wet scrubbing; Rule 6-5, delayed since 2015.

Fuel gas hydrotreating; Rule 9-1, delayed since 2015.

Refinery fuel combustion reduction strategy; Rule 13-XX, delayed since 2017.

Cross-basin $PM_{2.5}$ pollution trading ban; Rule 2-XX, delayed since 2017 (when BAAQMD deferred consideration of $PM_{2.5}$ emission caps originally proposed as part of proposed Rule 12-16).

Each of these protections was identified by BAAQMD, planned by BAAQMD for implementation 2–4 years ago, and found by BAAQMD staff at that time to be capable of cutting refinery emissions significantly based on refinery retrofit and/or operational measures which were demonstrated in practice. *See* Table 1 below. We emphasize that these health protections are needed urgently by people who are exposed to disparately severe oil industry pollution in low-income communities of color near refineries.

We are concerned that BAAQMD has engaged in no public rule development activity for any of these protections in 2019 to date, and worse, that in its 30 May 2019 refinery rules technical working group meeting, BAAQMD proposed a schedule that could delay work on these protections beyond 2019.[1]

Disparately severe localized air pollution would worsen environmental injustice with this delay. The biggest industrial $PM_{2.5}$ source in Chevron's Richmond refinery pollutes without a measure that proved effective since 2010 in cutting at least 90% of those emissions elsewhere.[2] Phillips 66 emits as much SO_2 from burning fuel gas in Rodeo as three other Bay Area refineries combined because it does not use fuel gas treatment achieved by others here and required in Los Angeles since 1994, which could cut up to 89% of those emissions.[3] Even measures as obvious as burning no more fuel than needed to refine the products Californians need and use, and putting $PM_{2.5}$ pollution trading into the dust bin of history where that toxic injustice belongs—protections BAAQMD considered in 2017—now appear to be deferred indefinitely.

Table 1. Oil Refinery Emission Reduction Rules—Environmental Justice Priorities, June 2019

Short description	FCCU Scrubbing	Fuel Gas Treating	Combustion Strategy	Pollution Trading Ban
Targeted emissions	$PM_{2.5}$ SO_x	SO_x $PM_{2.5}$	$PM_{2.5}$ SO_x NO_x	$PM_{2.5}$
Emission impact reduction potential	At least 90% emission cut	Approximately 89% SO_x emission cut	At least 5%/year cut each year	Prevent emission increase locally
Protective action	Wet scrubbing of FCCU emissions	Hydrotreating of non-acidic fuel gas	Burn less fuel in refineries	Prohibit non-local offsets for $PM_{2.5}$
Feasibility summary	Required/done elsewhere	Required/done elsewhere	Avoidable export production excess	Human rights imperative (also feasible)
BAAQMD identification	Rule 6–5 Measure SS1	Rule 9-1 Measure SS6	Rule 13-XX Measure SS18	Rule 2-XX (was Measure SS11)
Affected refineries	Chevron, Shell, Tesoro (Marathon)	Phillips 66	Each Bay Area petroleum refinery	Each Bay Area petroleum refinery
Original adoption hearing schedule	2015	2015	2017	2017*
Other relevant information	March 2019 catch-up deadline set by CARB has passed	Same standard set since 1994 in LA proposed in 2015	BAAQMD staff-proposed alternative to Rule 12-16 caps	*Rule 12-16 $PM_{2.5}$ caps deferred to Reg. 2 May 2017

These are exactly the type of emission-cutting measures that Assembly Bill 617 (2017) promised to prioritize for environmental justice.

There is simply no good excuse for preventable pollution. In this regard, we wish to address a question that has been brought to our attention informally: we support all appropriate actions to prevent and reduce pollution. Taking all such actions within its jurisdiction expeditiously, and ensuring it has staff resources to do so, is BAAQMD's job. BAAQMD has moved needed protections forward simultaneously before, as it should now. Indeed, the alternative—demanding that communities choose which way to be polluted unnecessarily—would only be another environmental injustice, cloaked in another disguise.

We look forward to your written response to this request for a schedule specifying public emission control rule development activities for each of the four protections summarized in Table 1 at your earliest opportunity, and in any case, we request your response no later than 15 July 2019.

Sincerely,

Laura Neish
350 Bay Area

Frances Aubrey
Alameda Interfaith Climate Action Network

Katherine Black
Benicians for a Safe and Healthy Community

Ken Szutu
Citizen Air Monitoring Network

Greg Karras
Communities for a Better Environment (CBE)

Nancy Rieser
Crockett-Rodeo United to Defend the Environment (C.R.U.D.E.)

Kathy Kerridge
Good Neighbor Steering Committee — Benicia

Bradley Angel, Executive Director
Greenaction for Health and Environmental Justice

Pennie Opal Plant, Co-founder
Idle No More SF Bay

Rev. Will McGarvey, Executive Director
Interfaith Climate Action Network of Contra Costa County

Jeff Kilbreth
Richmond Progressive Alliance

Janet Pygeorge and Janet Callaghan
Rodeo Citizens Association

David McCoard
Sierra Club San Francisco Bay Chapter

Matt Krogh
Stand.Earth

Steve Nadel
Sunflower Alliance

W. Ellen Sweet
West Marin Standing Together

[1] *See* BAAQMD Tentative 2019 Refinery Rules Rule Development Schedule, attached.
[2] *See* Catalytic cracker wet scrubbing issue summary fact sheet, attached.
[3] *See* Coker off-gas hydrotreating issue summary fact sheet, attached.

Copy: Richard Corey, Executive Officer, California Air Resources Board
Veronica Eady, Assistant Executive Officer, California Air Resources Board
Yana Garcia, Assistant Secretary for Environmental Justice and Tribal Affairs, Cal EPA
Board of Directors Chair Katie Rice and Directors, BAAQMD
BAAQMD Advisory Council members
Greg Nudd, Deputy Air Pollution Control Officer – Policy, BAAQMD
Victor Douglas, Rules Development Manager, BAAQMD

Tentative 2019 Refinery Rules Technical Working Group/Rule Development Schedule

Rule Development Effort	Jun	July	Aug	Sep	Oct	Nov	Dec
Hydrogen Production (unnumbered rule)	**TWG**			**DR/WS**		**TWG**	
Rule 8-5: Storage of Organic Liquids		**TWG**			**DR/WS**		**TWG**

Legend:

TWG	Technical Working Group
DR/WS	Draft Rule/Public Workshop
BH	Board Hearing

Other Rule Development Efforts for Future Sessions:

Regulation 2: Permits (Rules 2-1, 2-2, 2-5)
Rule 6-5: Refinery Fluid Catalytic Cracking Units
Rule 8-8: Petroleum Wastewater Treating
Rule 9-14: Petroleum Coke Calcining Operations
Rule 12-12: Flares at Petroleum Refineries
Rule 13-1: Significant Methane Releases

Scrub Chevron's catalytic cracking emissions to save lives in Richmond *now*

Chevron's fluid catalytic cracking unit (FCCU) is the dirtiest source of the deadliest air pollutant in Richmond. Its FCCU emits ≈ 270 tons of $PM_{2.5}$ each year, ≈ 60 % of all the $PM_{2.5}$ emitted by Chevron's oil refinery in Richmond.[1]

$PM_{2.5}$—particulate matter 2.5 microns in diameter or less—causes more than 90% of all deaths from air pollution and kills an estimated 2,000–3,000 people each year in the Bay Area.[2]

Everyone is exposed to this risk, yet low-income communities of color face disparately severe risk from refinery $PM_{2.5}$ emissions.[3] Burning "heavy oil" in the Chevron Richmond refinery increases health-threatening concentrations of $PM_{2.5}$ *inside* Richmond residents' homes.[4] That "heavy oil" includes pet coke Chevron burns in its FCCU.

Chevron Richmond Refinery Fluid Catalytic Cracking Unit (FCCU) during major repairs

Problem

FCCUs burn the dirtiest fuel and send pollution into our air so refiners can make more gasoline, diesel, and jet fuel from low quality oil.

Petroleum coke, or "pet" coke, is a byproduct of refining dirty fuels. Pet coke deposits on the refining catalyst in FCCUs. FCCUs burn it off to reactivate the catalyst as well as to heat the FCCU. Pet coke is the dirtiest fuel burned in the Bay Area.

Chevron's FCCU in Richmond burns 650–900 tons of pet coke per day.[5]

At the same time, Chevron's FCCU uses an old, inadequately effective emission control scheme called "ammonia assist-electrostatic precipitation," which also poses a serious explosion hazard during maintenance shutdowns and startups.

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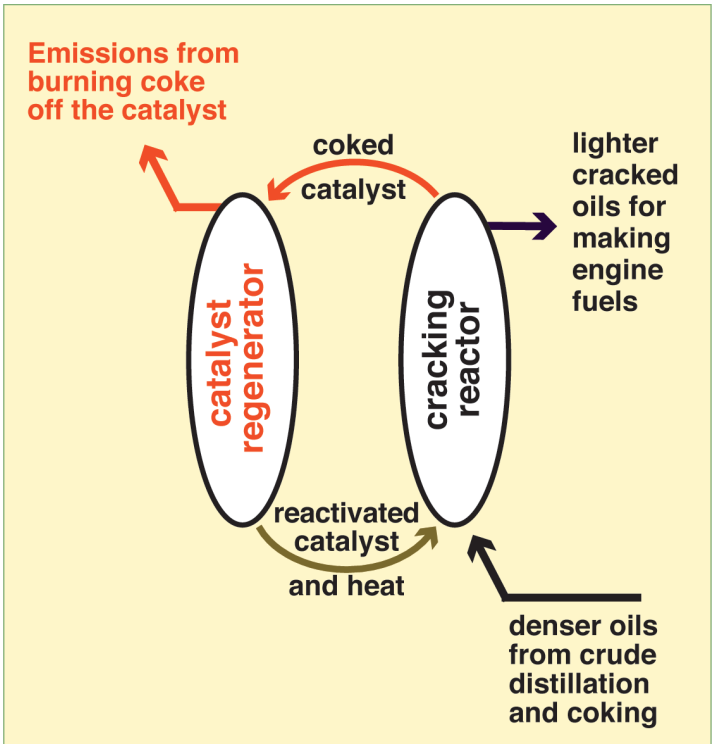


Fluid Catalytic Cracking Unit (FCCU) Process Flow — Simple Diagram

Scrub Chevron's catalytic cracking emissions *now* *continued*

Solution

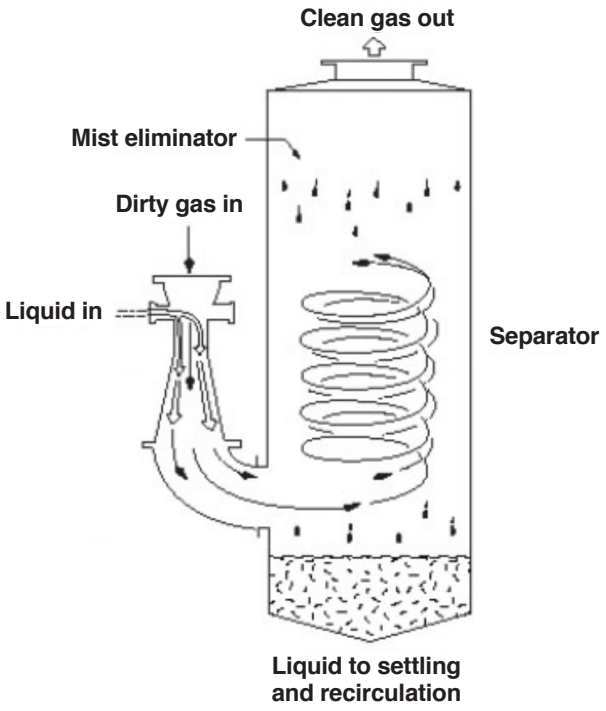
Wet scrubbing removes air pollutants from exhaust gases using water and chemicals called amines.

For example, requiring wet scrubbing on Valero's existing FCCU in Benicia reduced $PM_{2.5}$ (and SO_2) emissions from that FCCU by more than 90%.[5]

By cutting 90% of the $PM_{2.5}$ emitted from the Chevron Richmond refinery FCCU, wet scrubbing could save the lives of 16–18 people each year.[6]

Cost savings from averting these premature deaths could exceed the ammortized cost of wet scrubbing by a factor of 6–16 times.[6]

Chevron can cut FCCU emissions. Others have.



Wet Scrubber (Venturi Type)—Simple Diagram

Call to Action

Our local air officials can stop stalling on this life-saving protection. In fact, the State Air Resources Board has told them to start this FCCU cleanup work already—no later than March 2019.[7]

Join CBE to demand that the Bay Area Air Quality Management District (BAAQMD) strengthen its Rule 6-5 to require refinery FCCU emission cuts that can be achieved by wet scrubbing NOW.

Act now: Contact Andrés Soto (510.282.5363; andres@cbecal.org) or Zolboo Namkhaidorj (510.495.7959; zolboo@cbecal.org).

1. BAAQMD emission inventory, various years. **2.** BAAQMD Clean Air Plan supporting documents, 2017. **3.** Kuiper et al., 2017, BAAQMD Rule 12-16 development records. **4.** Brody et al., 2009. DOI: 10.2015/AJPH.2008.149088. **5.** Activity rate and source modification data, BAAQMD emission inventory, files, various years. **6.** From 90% of 270 tons/yr; ref. 2 (76 deaths and 700 MM$ associated costs averted/year by cutting $PM_{2.5}$ 2.8–3.1 tons/d); and assuming 100–200 MM$ scrubbing cost ammortized over 10 yrs. **7.** CARB Resolution 18-37 adopted 27 Sept. 2018.

Hydrotreat Phillips 66 Coker Off-Gas: Protect Health in Rodeo, Crockett and South Vallejo

Burning "fuel gas" created in refining emits ≈330 tons of sulfur dioxide from the Phillips 66 Rodeo refinery annually—twice as much as burning fuel gas emits from the Chevron Richmond, Tesoro Martinez, and Valero Benicia refineries combined.[1]

Sulfur dioxide (SO_2) air pollution is harmful itself, and also forms deadly $PM_{2.5}$—particulate matter 2.5 microns in diameter or less—in our air when SO_2 is emitted. Low-income communities and communities of color in Rodeo, Crockett, and South Vallejo face disparately severe health risks from the Rodeo refinery's air pollution.

Delayed Coker, Phillips 66 Refinery, Rodeo, CA

Problem

Phillips 66 is burning dirtier fuel gas because it is using coking to boost gasoline, diesel and jet fuel production from heavier, dirtier crude *and* it is not treating contaminants this sends into its fuel gas.

Delayed coking creates exceptionally polluting byproducts: petroleum coke, and coker off-gas. The fuel gas treatment Phillips 66 uses at Rodeo is not designed to remove the non-acidic sulfur compounds in the coker off-gas it burns as fuel.[1, 2]

Coker off-gas accounts for most of the SO_2 the Rodeo refinery emits from burning fuel gas.[2]

Solution

Phillips 66 can treat coker off-gas. Others do.

Hydrotreating its fuel gas could cut Rodeo refinery SO_2 emissions by ≈291 tons/year, the Bay Area Air Quality Management District (BAAQMD) estimates.[1] All other Bay Area refineries already use fuel gas hydrotreating, BAAQMD reports.[1]

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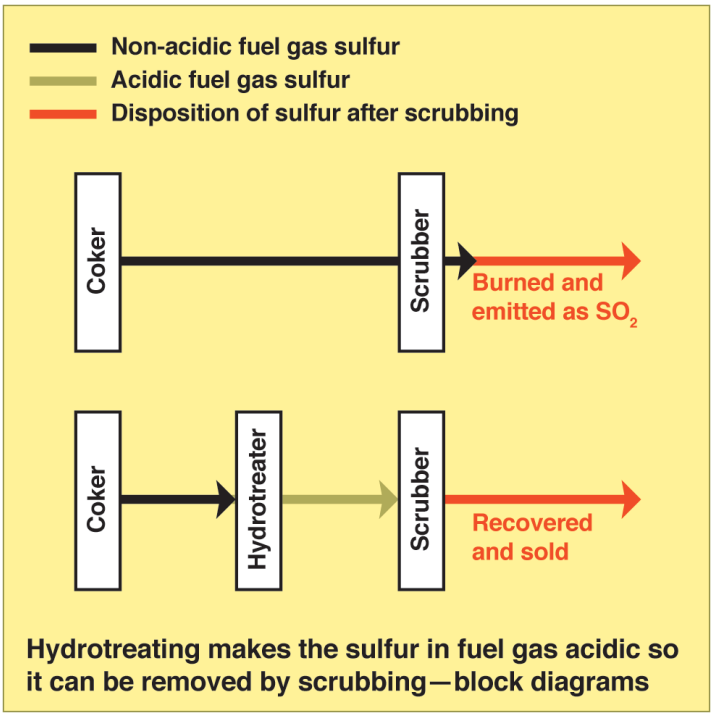


Hydrotreating makes the sulfur in fuel gas acidic so it can be removed by scrubbing—block diagrams

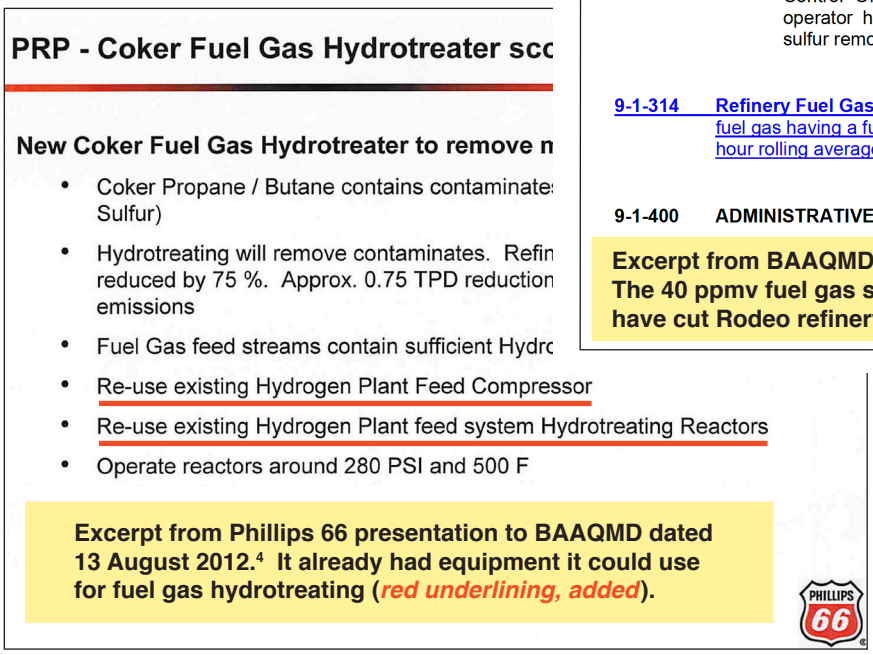
Hydrotreat Phillips 66 Coker Off-Gas: Protect Health *continued*

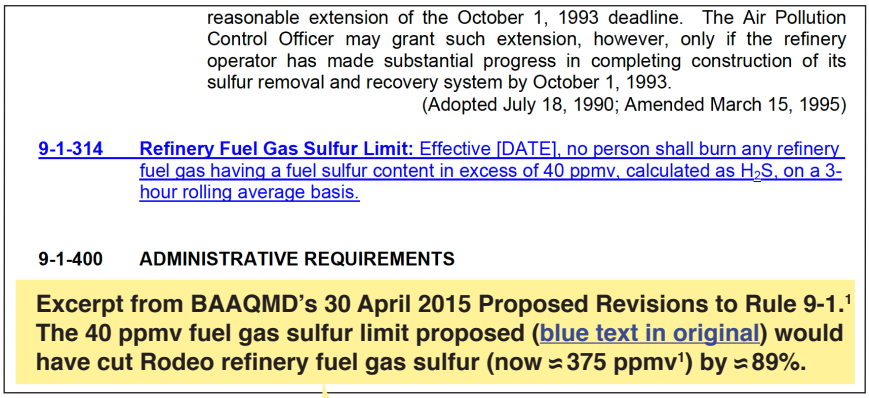
Toxic *In*justice

In 2015 BAAQMD proposed to revise its Rule 9-1 to force the emissions cuts fuel gas hydrotreating can achieve.[1] But it never did.[1, 3] Instead, from then until now, BAAQMD has failed to adopt this needed health protection.

Meanwhile, the same fuel gas cleanup standard it proposed in 2015 has applied to Los Angeles Area refineries since 1994.[1] And, Phillips 66 told BAAQMD, the refiner *already had* the key equipment that it could re-purpose to hydrotreat its fuel gas on site at its Rodeo refinery—*since August 2012*.[4]

Phillips 66 had equipment to do the same retrofit other Bay Area refineries have already done. Emissions control this could provide was already required in Southern California. And yet that equipment sat unused in Rodeo. Since August 2012, by the BAAQMD's own 291 tons/year estimate,[1, 5] this neglect sent ≈1,940 tons of SO_2 into nearby low-income, black, and brown communities' air.




reasonable extension of the October 1, 1993 deadline. The Air Pollution Control Officer may grant such extension, however, only if the refinery operator has made substantial progress in completing construction of its sulfur removal and recovery system by October 1, 1993.
(Adopted July 18, 1990; Amended March 15, 1995)

9-1-314 **Refinery Fuel Gas Sulfur Limit:** Effective [DATE], no person shall burn any refinery fuel gas having a fuel sulfur content in excess of 40 ppmv, calculated as H_2S, on a 3-hour rolling average basis.

9-1-400 **ADMINISTRATIVE REQUIREMENTS**

Excerpt from BAAQMD's 30 April 2015 Proposed Revisions to Rule 9-1.[1] The 40 ppmv fuel gas sulfur limit proposed (blue text in original) would have cut Rodeo refinery fuel gas sulfur (now ≃375 ppmv[1]) by ≃89%.

"ppmv" means parts per million by volume of gas, so this 40 ppmv limit would limit sulfur to 40 out of each million parts of the total fuel gas volume that's burned

Take Action: Join CBE to demand that the Bay Area Air Quality Management District strengthen its Rule 9-1 to require refinery emission cuts that can be achieved by fuel gas hydrotreating ***NOW***.

Email BAAQMD: Executive Officer **Jack Broadbent;** Board member **Mark Ross** (City of Martinez), and Board members **Karen Mitchoff**, and **John Gioia** (Contra Costa County). *Send your emails to them through the BAAQMD Board's Clerk, Marcy Hiratzka:* mhiratzka@baaqmd.gov

Send us a copy of your correspondence with BAAQMD, and get more involved: Andrés Soto, CBE Organizer; andres@cbecal.org and Zolboo Namkhaidorj, CBE Youth Organizer; zolboo@cbecal.org

(1) Bay Area Air Quality Management District (BAAQMD), 2015. Regulation 9, Rule 1 (Rule 9-1): 05-14-15 Draft Concept Paper and 4-30-15 Draft Proposed Revisions. **(2)** Phillips 66, 2013. Request for emission reduction credits, BAAQMD Permit Application #25199. **(3)** Rule 9-1 as of May 2019; www.baaqmd.gov/rules-and-compliance/current-rules. **(4)** Phillips 66 "Propane Recovery Project Overview" presented to BAAQMD, dated 13 Aug 2012. **(5)** 291 ÷ 12 (tons/month) from Sep 2012 through Apr 2019.