June 3, 2024

Submitted via https://www.regulations.gov

Nicole Law
Donnique Sherman
Sina Schwenk-Mueller
EPA Region IX
75 Hawthorne St.
San Francisco, CA 94105

Re: Proposal to Approve California SIP Revisions (EPA–R09–OAR–2024–0175; FRL–11888–01–R9)

Dear Ms. Law, Ms. Sherman, and Ms. Schwenk-Mueller:

We are writing to submit these comments on behalf of Voices in Solidarity Against Oil in Neighborhoods, Central California Environmental Justice Network, FracTracker Alliance, the Center for Biological Diversity, and Earthjustice, on the following agency actions—

- EPA's proposal to approve revisions to California's state implementation plan (SIP), including a statewide rule and six air district rules regulating emissions of volatile organic compounds (VOCs) from crude oil and natural gas facilities, and reasonably available control technology (RACT) demonstrations for the 2008 and 2015 ozone national ambient air quality standards (NAAQS) for sources covered by EPA's 2016 Control Techniques Guidelines for the Oil and Gas Industry (Oil and Gas CTG)[1] for the Sacramento Metropolitan Air Quality Management District (AQMD), San Joaquin Valley Unified Air Pollution Control District (APCD), Ventura County APCD, and Yolo-Solano AQMD;[2] and
- EPA's proposal to conditionally approve SIP revisions based on the RACT demonstrations for the 2008 and 2015 ozone NAAQS for sources covered by the Oil and Gas CTG for the South Coast AQMD.[3]

These comments build on comments submitted on June 13, 2022, in connection with the prior iteration of this rulemaking, which we incorporate herein by reference.[4]

California's proposed SIP does not meet the minimum requirements of RACT and will not qualify for EPA approval under the Clean Air Act unless and until serious deficiencies are corrected. We urge the EPA to disapprove the SIP revisions and instruct California to resubmit a SIP that includes, at minimum, (1) a full disclosure and analysis of the environmental justice impacts of the SIP; (2) RACT requirements applicable to all oil and gas wells in nonattainment

[1] EPA, *Control Techniques Guidelines for the Oil and Natural Gas Industry*, EPA-453/B-16-001 (Oct. 2016) (hereafter Oil and Gas CTG), https://www.epa.gov/sites/default/files/2016-10/documents/2016-ctg-oil-and-gas.pdf.
[2] 89 Fed. Reg. 36729, 26729-37, Docket No. EPA–R09–OAR–2024–0175; FRL–11888–01–R9 (May 3, 2024).
[3] *Id.*
[4] Letter from Hollin Kretzmann, Center for Biological Diversity, et al., to Nicole Law, EPA Region IX, et al., Comment ID EPA-R09-OAR-2022-0416-0072 (June 13, 2022).

areas, regardless of production volume (this includes idle wells), the gravity of oil, and whether the wellhead is connected to other equipment; and (3) improved monitoring and reporting requirements.

Likewise, EPA's guidelines (particularly the Oil and Gas CTG) and regulations are inconsistent with the Clean Air Act to the extent they recommend exemptions for low production wells (including idle wells), heavy oil, and wellhead-only sites, and must be revised to ensure that RACT such as optical gas imaging (OGI) or Method 21 inspections are in use at all wells in all oil-producing states with moderate or higher ozone non-attainment areas.

Together, California's SIP, the Oil and Gas CTG, and EPA's wellhead-only regulation create "create[] a potent loophole for polluters to walk through."[5] Fugitive emissions from all well sites—whether idle or active, heavy or light, containing infrastructure or wellhead only—are a category of VOC sources covered by the Oil and Gas CTG, represent a major source of VOC emissions in California and a major public health threat, and merit full RACT protections.

I. EPA must conduct a full analysis of environmental justice impacts of this SIP.

Figure 2: CalEnviroScreen 4.0 Results Map

[5] *Sierra Club v. U.S. EPA*, 972 F.3d 290, 297 (3d Cir. 2020).

California has some of the worst air quality in the nation. These poor air quality conditions are borne most heavily by the state's environmental justice communities, as depicted on the maps[6] above. A significant portion of this air pollution can be attributed to oil and gas activity. VOC emissions from oil and gas activity result in the formation and increased presence of smog, contributing to adverse health impacts for communities near oilfields. Even so, neither the State nor EPA considered environmental justice factors in evaluating the proposed SIP or RACT standards, despite Executive Order 12898 directing environmental justice analysis in federal decisionmaking.[7] The Order's mandate to incorporate and promote environmental justice "to the greatest extent practicable" is clear, but this SIP fails to meet this requirement by exempting significant amounts of VOC near low-income communities and communities of color from the RACT requirements.

Ozone, the main component of smog, is a corrosive air pollutant that inflames the lungs, constricts breathing, and likely kills people.[8] Ozone causes and exacerbates asthma attacks, emergency room visits, hospitalizations, and other serious health harms.[9] Ozone-induced health problems can force people to change their ordinary activities, requiring children to stay indoors and forcing people to take medication and miss work or school.[10]

Ozone can harm healthy adults, but others are more vulnerable.[11] Because their respiratory tracts are not fully developed, children are especially vulnerable to ozone pollution, particularly when they have elevated respiratory rates, as when playing outdoors.[12] People with lung disease and the elderly also have heightened vulnerability.[13] People with asthma suffer more severe impacts from ozone exposure than healthy individuals do and are more vulnerable at lower levels of exposure.[14]

Ozone also damages vegetation and forested ecosystems, causing or contributing to widespread stunting of plant growth, tree deaths, reduced carbon storage, and reduced crop yields.[15] The damage includes tree-growth losses reaching 30-50% in some areas, and widespread visible leaf injury, including 25-37% of sites studied in just one state.[16] By harming vegetation, ozone can also damage entire ecosystems, leading to ecological and economic losses.[17]

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[6] Figure 1: CARB Air Quality Planning and Science Division, 2022 Area Designations for State Ambient Air Quality Standards, Ozone (Nov. 2022); Figure 2: Cal. Office of Environmental Health Hazard Assessment, *CalEnviroScreen 4.0 Results Map*, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40 (last accessed June 3, 2024).
[7] Executive Order 12898 (Clinton), 59 Fed. Reg. 7629 (Feb. 16, 1994).
[8] EPA, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,292, 65,308-09 (Oct. 26, 2015); EPA, Integrated Science Assessment for Ozone and Related Photochemical Oxidants, at 2-20 to -24, Table 2-1 (Feb. 2013) (EPA-HQ-OAR-2008-0699-0405) ("Science Assessment").
[9] *See, e.g.,* EPA, Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards, at 3-18, 3-26 to -29, 3-32 (Aug. 2014) (EPA-HQ-OAR-2008-0699-0404) (Policy Assessment); Science Assessment at 2-16 to -18, 2-20 to -24 Table 2-1.
[10] *See, e.g.,* Policy Assessment at 4-12.
[11] *See* 80 Fed. Reg. at 65,310.
[12] *See, e.g.,* Policy Assessment at 3-81 to -82.
[13] *See* 80 Fed. Reg. at 65,310.
[14] *Id.* at 65,311 n.37, 65,322.
[15] Policy Assessment at 5-2 to -3; Science Assessment at 9-1.
[16] Policy Assessment at 5-13; Science Assessment at 9-40.
[17] 80 Fed. Reg. at 65,370, 65,377.

Areas within a state classified as being in "moderate" nonattainment or higher for the 2008 and 2015 8-hour ozone NAAQS must implement RACT. California has five such nonattainment areas[18] which reflect a correlation between ozone pollution, heavy oil and gas activity, adverse health effects, and environmental justice communities.

For example, the San Joaquin Valley Air Basin is classified as being in "Extreme" nonattainment for the 2008 and 2015 8-hour ozone NAAQS,[19] and is home to a number of communities with some of the highest overall CalEnviroScreen scores indicative of disadvantaged communities "burdened by multiple sources of pollution and with population characteristics that make them more sensitive to pollution."[20] In particular, a sampling of census tracts from the Bakersfield area, below, illustrates the strong overlap between environmental injustice, air quality, and oil and gas drilling in California, including downtown Bakersfield tracts with both overall scores and asthma scores as high as the 99th percentile:[21]

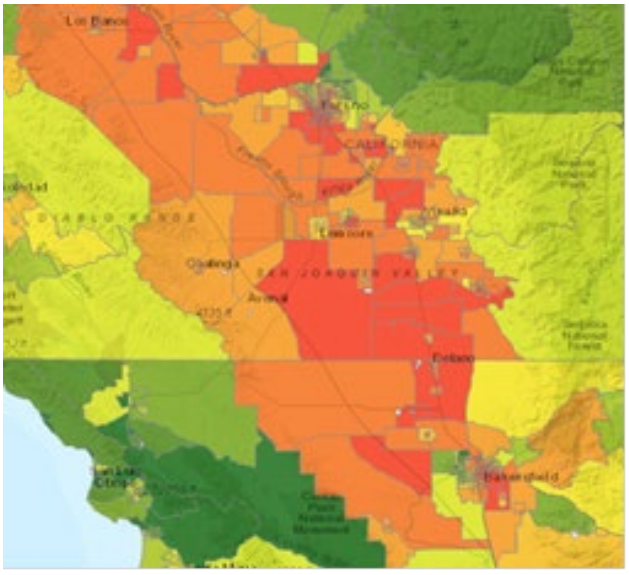

Figure 3: CalEnviroScreen Map, San Joaquin Valley

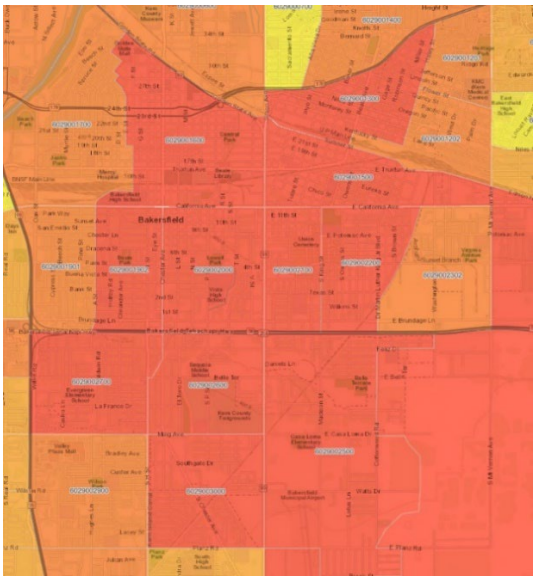

Figure 4: CalEnviroScreen Map, Downtown Bakersfield

[18] For the 2008 and 2015 8-hour ozone NAAQS, South Coast Air Basin, Riverside County / Coachella Valley, San Joaquin Valley Air Basin, Sacramento Metropolitan, and Ventura County were rated either "serious," "severe," or "extreme." EPA, *TSD for EPA's Rulemaking for the California State Implementation Plan* at 1-2 (April 2022).
[19] *See* 40 C.F.R. § 81.305.
[20] *See, e.g.,* Cal. EPA, *Final Designation of Disadvantaged Communities Pursuant to Senate Bill 535* at 15, Figure 2 (May 2022) (map of disadvantaged communities in the Los Angeles Region), https://calepa.ca.gov/wp-content/uploads/sites/6/2022/05/Updated-Disadvantaged-Communities-Designation-DAC-May-2022-Eng.a.hp_-1.pdf. *See also id.* at 19, Figure 6 (map of disadvantaged communities in the San Joaquin Valley); California Department of Public Health Environmental Health Investigations Branch, *California Asthma Dashboard* (discussing asthma rates by county), https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CPE/Pages/CaliforniaBreathingCountyAsthmaProfile.aspx (accessed May 31, 2024).
[21] *See, e.g.,* CalEnviroScreen 4.0 at Census Tract 6029002000 (99 overall, 95 asthma), 6029001902 (92 overall, 97 asthma), 6029001600 (95 overall, 99 asthma), 6029001500 (95 overall, 94 asthma), 6029001300 (93 overall, 97 asthma), 6029002700 (91 overall, 97 asthma), 6029002600 (95 overall, 91 asthma). Available at https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/ (accessed June 3, 2024).

Similarly, the South Coast Air Basin is classified as being in "Extreme" nonattainment for the 2008 and 2015 8-hour ozone NAAQS.[22] A sampling of census tracts from the heavily drilled Wilmington area of Los Angeles area, depicted on the maps below, once again confirms the linkage between oil and gas production, air pollution, and environmental injustice, including overall scores as high as the 99th percentile and asthma scores in the 80s.[23]

Figure 5: CalEnviroScreen Map, Los Angeles

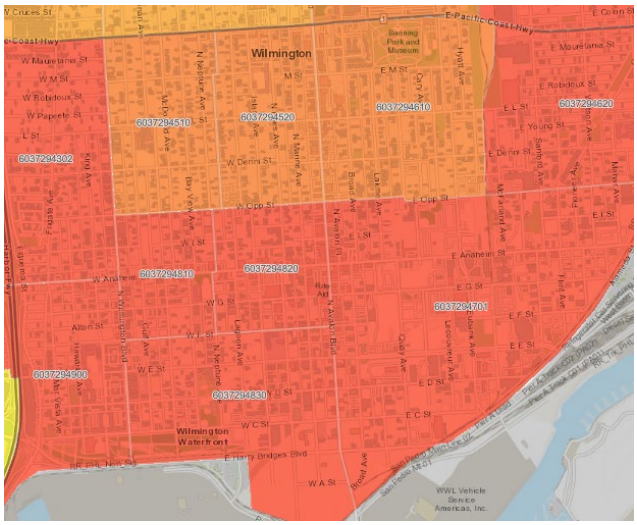

Figure 6: CalEnviroScreen Map, Wilmington Area of Los Angeles

Frontline communities live with oil and gas wells in their neighborhoods. California has no statewide setback to separate oil wells from homes, schools, or other sensitive receptors.[24] As a result, Californians are acutely aware of the links between oil and gas wells and their health. The recent discovery of fugitive emissions from dozens of leaking idle wells in Kern County provided a stark example of the dangers of living close to idle wells. These wells were found leaking high concentrations of methane, some at levels high enough to be explosive.[25]

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[22] EPA, *TSD for EPA's Rulemaking for the California State Implementation Plan* at 1.

[23] *See, e.g.,* CalEnviroScreen 4.0 at Census Tract 6037294302 (91 overall, 82 asthma), 6037294900 (96 overall, 81 asthma), 6037294810 (91 overall, 83 asthma), 6037294820 (95 overall, 83 asthma), 6037294830 (98 overall, 83 asthma), 6037294701 (99 overall, 83 asthma), 6037294620 (91 overall, 83 asthma), 6037294120 (97 overall, 83 asthma).

[24] The California legislature enacted a statewide setback of 3,200 feet between oil and gas wells and sensitive receptors like homes and schools in recognition of the "direct health impacts from proximity to oil extraction," which "disproportionately impact[] Black, indigenous, and people of color in California," S.B. 1137, § 1, 2022 Leg., Reg. Sess. (Cal. 2022), but the legislation is currently on hold pending the outcome of an industry-funded referendum on the November 2024 ballot, Jim Newton, *In 2024, who will California voters believe more: Oil companies or Jane Fonda?*, Cal Matters, Dec. 21, 2023, https://calmatters.org/commentary/2023/12/voter-referendum-jane-fonda-oil/.

[25] Janet Wilson, *21 Oil Wells Now Found Leaking Methane Near California Homes*, Desert Sun, June 2, 2022, https://www.desertsun.com/story/news/environment/2022/06/02/number-oil-wells-leaking-methane-near-californiahomes-climbs-21/7484046001/. *See also Inspectors Find 14th Oil Well Leaking Methane in Bakersfield Residential Area*, Bakersfield Californian, May 31, 2022, https://www.bakersfield.com/news/inspectors-find-14th-oil-well-leaking-methane-in-bakersfield-residentialarea/article_76b33f18-e127-11ec-98ae-cbb404e66185.html.

EPA admits that it did not conduct an environmental justice analysis for this rulemaking.[26] Eschewing such an analysis is inconsistent with Executive Order 12898, which directs agencies, to the extent practical and appropriate, to "use [environmental justice-related] information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations."[27]

While EPA maintains that "the CAA and applicable implementing regulations neither prohibit nor require" an environmental justice review in the present context,[28] EPA also admits that RACT must be based on case-specific evaluations of circumstances in particular jurisdictions and information submitted by members of the public.[29] Likewise, EPA insists that costs are a relevant concern in determining what does or does not qualify as RACT.[30]

As Californians living and working on the frontlines of oil production suffer astronomical public health costs (discussed further *infra*), environmental justice is directly relevant here as a case- and jurisdiction-specific factor illustrating why RACT is necessary. RACT-related reductions in VOC emissions would results in major improvements to the health and wellbeing of Californians living closest to oil wells, including cost savings due to fewer missed days of work, fewer visits to emergency rooms for asthma attacks, and reductions in premature mortality. It is essential that EPA acts with this big picture in mind when making decisions about RACT, rather than dismissing technologically superior options due to concerns about costs to industry.

Given oil and gas activity's disproportionate harm to environmental justice communities, the exemptions allowing wells located in these communities to evade pollution control requirements under the Clean Air Act will have disproportionate impacts on the same communities that have historically suffered from oil and gas production. As such, EPA must, at minimum, provide a thorough analysis of the disproportionate impacts on California's frontline communities under the proposed SIP.

II. EPA must revise its guidelines to include RACT protections to reduce VOC emissions from all low production wells, including idle wells.

The Clean Air Act requires implementation of reasonably available control technology (RACT) in state implementation plans for states like California with ozone nonattainment areas classified as Moderate or above.[31] EPA has made clear that "all sources contributing to the nonattainment situation are required to implement restrictive available control measures even if it requires

[26] 89 Fed. Reg. at 36737.
[27] Executive Order 12898 (Clinton) 59 Fed. Reg. 7629 (Feb. 16, 1994) 3-302(a).
[28] 89 Fed. Reg. at 36737.
[29] EPA Memorandum from Anna Marie Wood, Director of Air Quality Policy Division, to Regional Air Division Directors, Implementing Reasonably Available Control Technology Requirements for Sources Covered by the 2016 Control Techniques Guidelines for the Oil and Natural Gas Industry at 2 (Oct. 20, 2016) (hereafter Wood Memo), https://www.epa.gov/sites/default/files/2016-10/documents/implementing_reasonably_available_control_technology_requirements_for_sources_covered_by_the_2016_control_techniques_guidelines_for_the_oil_and_natural_gas_industry.pdf.
[30] *See* Oil and Gas CTG at 1-1 (defining RACT as including economic feasibility).
[31] CAA § 182(b)(2), 42 U.S.C. § 7511a(b)(2).

significant sacrifice."[32] EPA has long maintained that "RACT should represent the toughest controls considering technological and economic feasibility that can be applied to a specific situation" and that "[a]nything less than this is by definition less than RACT."[33] While California's SIP applies RACT requirements at light-oil, low production wells, it exempts significant volumes of oil and gas emissions by failing to apply RACT requirements at heavy-oil, low production wells.

Additionally, EPA erroneously considers low production wells, including idle wells, outside the scope of the instant rulemaking,[34] meaning that a huge additional volume of emissions could evade RACT requirements in other oil-producing states with nonattainment areas. In reality, low-producing and idle wells represent a category of sources that *are* covered by the 2016 Oil and Gas CTG, and the VOC emissions from this category are substantial. "Rules affecting major sources in nonattainment areas generally cannot exempt activities subject to relevant CTGs or other presumptive RACT…"[35] Accordingly, EPA improperly failed to consider emissions from low production wells when determining that RACT is unnecessary at active heavy-oil wells, and failed altogether to consider the need for RACT at light-oil low production wells, and EPA's resulting proposal to uphold California's air regulations is fatally flawed. Furthermore, EPA's proposal to approve California's ozone SIP is not "based on a consideration of the relevant factors" as required by the Administrative Procedure Act.[36]

A. Fugitive emissions from idle and marginally producing wells fall within the category of sources covered by the 2016 Oil and Gas CTG.

EPA's guidelines would exempt the vast majority of California's oil and gas wells from RACT requirements under its carveout for wells that produce less than 15 barrels of oil equivalent per day. While California's rules provide coverage for light-oil, low-production and idle wells, it is important for EPA to revise the Oil and Gas CTG to ensure that RACT applies to all low production and idle wells in all oil-producing states with moderate or worse ozone nonattainment.

The Clean Air Act requires RACT protections for all low production wells, including California's 40,000 idle wells.[37] RACT applies to "[e]ach category of VOC sources in the area covered by a [control techniques guideline (CTG)] document."[38] Fugitive emissions from idle wells are a "category" of VOC sources "covered by" EPA's 2016 CTG "for the Oil and Natural Gas Industry" (Oil and Gas CTG).[39] Accordingly, EPA's position that RACT is only necessary for oil

[32] Memorandum from Roger Strelow, Assistant Administrator for Air and Waste Management at U.S Env't Prot. Agency, to Regional Administrators, Regions I - X, at 5 (Dec. 9, 1976) (hereafter Strelow Memo), https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19761209_strelow_ract.pdf.
[33] *Id.* at 3.
[34] 87 Fed. Reg. at 59317.
[35] EPA, Little Bluebook at 3.
[36] *State of Mich. v. Thomas*, 805 F.2d 176, 181–82 (6th Cir. 1986).
[37] EPA defines "low production wells" as wells "where the average combined oil and natural gas production is less than 15 barrels of oil equivalent (boe) per day averaged over the first 30 days of production," which necessarily includes idle wells that produce 0 boe per day. 81 Fed. Reg. 35824, 35856 (June 3, 2016).
[38] CAA § 182(b)(2)(A), 42 U.S.C. § 7511a(b)(2)(A).
[39] *See generally* Oil and Gas CTG, *supra*.

wells that produce more than 15 boe per day is inconsistent with the Clean Air Act. Any SIP or federal implementation plan approvals on this basis would be arbitrary, capricious, and an abuse of discretion.

EPA's Oil and Gas CTG "covers select sources of VOC emissions in the onshore production and processing segments of the oil and natural gas industry," specifically including "fugitive emissions."[40] In particular, the Oil and Gas CTG applies to "existing sources of VOC emissions," including emissions covered by new source performance standards (NSPS) "establish[ing][41] VOC emission standards for certain new and modified sources in the oil and gas industry."[42] As one example, the Oil and Gas CTG cites a 2016 rule finalizing VOC standards "for several emission sources not previously covered by the NSPS," including "fugitive emissions from well sites and compressor stations." This fugitive emissions rule explicitly covers fugitive emissions from low-producing and idle wells.[43]

In the final rule setting NSPS for fugitive emissions from well sites, EPA discussed its initial proposal to exclude low production oil and gas wells from fugitive emissions monitoring and repair requirements, and its decision to reverse course based on the following:

> Based on the data from DrillingInfo, 30 percent of natural gas wells are low production wells, and 43 percent of all oil wells are low production wells…[T]his type of well…is typically unmanned and not visited as often as other well sites that would allow fugitive emissions to go undetected…[T]he potential emissions from these well sites could be as significant as the emissions from non-low production well sites because the type of equipment and the well pressures are more than likely the same.[44]

As a result, and based "in particular, [on] the large number of low production wells and the similarities between well sites with production greater than 15 boe per day and low production well sites in terms of the components that could leak and the associated emissions," EPA stated that "we are not exempting low production well sites from the fugitive emissions monitoring program. Therefore, the collection of fugitive emissions components at *all* new, modified or reconstructed well sites is an affected facility and must meet the requirements of the fugitive emissions monitoring program."[45]

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[40] Oil and Gas CTG at 3-5.
[41] *Id.* at 2-4.
[42] *Id.* at 2-1 (citing 81 Fed. Reg. 35824 (June 3, 2016)).
[43] *See* 81 Fed. Reg. 35824, 35827 (June 3, 2016) ("The final fugitive standards apply to low production wells.").
[44] *Id.* at 35856. Notably, while EPA temporarily reversed its position on low-production wells in a 2020 technical rule on cost-effectiveness grounds and based on an assumption that low production wells emit lower amounts of pollution, a 2021 proposed rule that recently became final admitted that both of these rationale were without basis and reinstated the 2016 NSPS policy on low production wells. 86 Fed. Reg. 63110, 63158-59 (Nov. 15, 2021); 89 Fed. Reg. 16820, 16989-90 (Mar. 8, 2024).
[45] 81 Fed. Reg. at 35827 (emphasis added). *See also* 40 C.F.R. § 60.5397a (requiring VOC emissions reductions such as monitoring, repair, and recordkeeping requirements at "affected facilities"); 40 C.F.R. § 60.5365a(i) (generally defining "an affected facility" to include "the collection of fugitive emissions components at a well site"); 40 C.F.R. § 60.5430a (defining the "[c]rude oil and natural gas source category" as "[c]rude oil production, which includes the well" and "[n]atural gas production, processing, transmission, and storage, which include the well…")

Since fugitive emissions from low production oil and gas rules represent an existing source of VOC emissions from the oil and gas industry with established NSPS in place, such emissions represent a "category" that is "covered by" the Oil and Gas CTG for purposes of section 182(b) of the Clean Air Act, meaning that California and other moderate+ ozone non-attainment states must impose RACT requirements to address this source of emissions.[46] Moreover, EPA fails to provide a justification for exempting low-production and idle wells given its own assessment that "the potential emissions from these well sites could be as significant as the emissions from non-low production well sites because the type of equipment and the well pressures are more than likely the same."[47]

Based on the above, while the Oil and Gas CTG attempts to carve out low production wells from the scope of coverage,[48] the effect is simply to make a *recommendation* that RACT is unnecessary for this covered category of emissions, the same way the CTG makes a *recommendation* that RACT is unnecessary for active wells that produce heavy oil, as discussed further *infra*. Moreover, the CTG itself "encourage[s] air agencies to consider site-specific data from [wells producing under 15 barrels per day] in their RACT analyses."[49] The proposed SIP does not make any such consideration nor does it require local air districts to do so.

EPA has never disputed that fugitive emissions from *active* wells fall within the scope of the Oil and Gas CTG—equally so do fugitive emissions from low production wells. California must continue imposing RACT for both emissions categories,[50] and EPA must revise the Oil and Gas CTG to make clear that coverage for low production wells is part of the federal minimum standards expected for compliance with the Clean Air Act's RACT requirements. Likewise, EPA must provide a substantive response to our comments about low production and idle wells consistent

[46] While there is an exception in the regulations for sites that "only contain[] one or more wellheads," 40 C.F.R. § 60.5365a(i)(2), it is important to note that wells producing *any* volume of oil or gas, even amounts less than 15 boe, would necessarily have production-related components onsite, and many idle wells (defined in California as being out of production for 24 consecutive months, Cal. Pub. Res. Code, § 3008(d)) should still have production-related components onsite because the entire premise of leaving a well idle rather than plugging and abandoning it is the potential to return it to active production. *See* Cal. Pub. Res. Code, § 3206.1(a)(4) (allowing an operator to demonstrate that a well is "idle" and not "deserted" by providing "an engineering analysis demonstrating...that it is viable to return the idle well to operation in the future").

[47] 81 Fed. Reg. at 35856; *see also* 86 Fed. Reg. at 63159 ("[D]ue to the wide variation in well characteristics, types of oil and gas products and production levels, gas composition, and types of equipment at well sites, there is considerable uncertainty regarding the relationship between the fugitive emissions and production levels. Accordingly, the EPA no longer believes that production levels provide an appropriate threshold for any exemption from fugitive monitoring.").

[48] *See* Oil and Gas CTG at 9-1 ("For purposes of this CTG, the emissions and programs to control emissions discussed herein would apply to the collection of fugitive emissions components at well sites with an average production of greater than 15 barrel equivalents per well per day," and "[f]or the purposes of this CTG, fugitive emission reduction recommendations would not apply to well sites that only contain wellheads").

[49] CTG at 9-38.

[50] As a factual matter, CARB's Leak Detection and Repair standards *do* generally apply to fugitive emissions from light-oil idle wells. *See* Cal. Code Regs., tit. 17, §§ 95666, 95669(a), (c)(2) (making CARB's leak detection requirements applicable to "owners and operators of equipment and components associated with . . . crude oil or natural gas production" "regardless of emissions level or well status," except for components "used exclusively for" heavy oil). Nevertheless, it is important for EPA to clarify as a matter of federal law that RACT is mandatory for fugitive emissions of VOCs from *all* oil wells.

with EPA's obligations under the Clean Air Act and Administrative Procedure Act,[51] rather than dismissing such comments offhand.[52]

B. RACT for idle and marginally producing wells is necessary due to the scope of the emissions problem from idle and marginally producing wells.

1. Low producing and idle wells represents a huge source of statewide VOC emissions.

According to CalGEM's online database, California currently has around 40,000 idle wells, which comprise 39 percent of all the unplugged wells in the state.[53] By one estimate, two-thirds of those idle wells are leaking methane.[54] In 2020, researchers identified a combined total of 69,425 idle wells and economically marginal wells, 2,975 wells at high risk of becoming orphans in the near future, and 2,565 wells that were likely orphans, meaning there is no owner or operator for those wells.[55] The researchers defined "marginal" wells as those producing less than 5 barrels per day.[56] California currently has 65,019 unplugged oil and gas wells, with 59,772 (91.9%) of those qualifying as idle or producing less than an average of 15 barrels per day.[57]

Unplugged wells can be "super-emitting" sources of methane,[58] which EPA recognizes as a proxy for VOC emissions.[59] An estimated 30 million tons of methane spewed from one such idle

[51] *See Allied Local & Reg'l Mfrs. Caucus v. EPA*, 215 F.3d 61, 80 (D.C. Cir. 2000) ("For an agency's decisionmaking to be rational, it must respond to significant points raised during the public comment period.").
[52] In responding to our June 13, 2022 comments discussing the problem of methane and VOC leaks from idle wells in California in relation to the heavy-oil exemption, EPA acknowledged that "leaking wells might implicate the RACT requirement" for *non*-idle wells but failed to address the merits of our complaint regarding the lack of RACT for idle wells, on the incorrect basis that "commenters' concerns regarding idle wells relate to emissions from sources not covered by the CTG . . . and are therefore beyond the scope of this rulemaking." *Compare* Letter from Hollin Kretzmann, *supra*, *with* 87 Fed. Reg. at 59317.
[53] CalGEM Data Dashboard, https://www.conservation.ca.gov/calgem/Online_Data/Pages/WellSTAR-Data-Dashboard.aspx (accessed May 28, 2024); Letter from Kyle Ferrar, Western Program Director, FracTracker Alliance Re: Expert Witness Comments on Scope of U.S. EPA State Implementation Plan of RACT Requirements for Oil and Gas Sites at 2 (June 3, 2024).
[54] Lebel, E. et al., Methane Emissions from Abandoned Oil and Gas Wells in California, Environmental Science and Technology, 54, 14617-14262 (2020).
[55] J. Boomhower et al., *Orphan Wells in California: An Initial Assessment of the State's Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells*, California Council on Science and Technology at 16 (2020), https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf.
[56] *Id.* at 16.
[57] Letter from Kyle Ferrar at 3.
[58] M. Kang et al., *Identification and characterization of high methane-emitting abandoned oil and gas wells*, Proceedings of the National Academy of Sciences (2016), https://www.pnas.org/content/pnas/113/48/13636.full.pdf; J. Sullivan, *Abandoned wells can be 'super- emitters' of greenhouse gas*, Princeton University Office of Engineering, Dec. 9, 2014, https://www.princeton.edu/news/2014/12/09/abandoned-wells-can-be-super-emittersgreenhouse-gas.
[59] *See* 87 Fed. Reg. at 59317 ("With respect to the commenters' concerns regarding leaking wells, the EPA agrees that if wells are leaking methane, they are likely to also leak VOCs.")

well in California.[60] This would equate to **8.34 tons** of VOCs from a single well.[61] Countless other idle and deserted wells may also be leaking significant quantities of methane.

Inspections conducted by CalGEM and community watchdogs over the past two years further demonstrate wells in frontline communities pose a nuisance to nearby residents. These inspections exposed the "widespread" leaking of methane and other air pollutants from dozens of oil and gas wells and infrastructure in the Bakersfield, Arvin-Lamont, Los Angeles, and Ventura areas, including many leaks from idle wells and some wells leaking methane at explosive levels.[62]

Given these high leakage rates and known instances of super-emitter wells, EPA's Oil and Gas CTG does not adequately explain why low-producing and idle wells should be exempt from RACT requirements.

2. VOCs from low producing and idle wells are particularly dangerous to frontline communities.

Most wells located within 3,200 feet of communities in California "produce very low volumes of oil and already have high counts of idle wells," including "28% idle in Wilmington, 25% in Inglewood, and 56% in Long Beach."[63] It would be wrong for EPA to allow operators to use idling to avoid incremental expense associated with RACT inspections of these wells, when doing so shifts those costs to the health of frontline communities and, ultimately, the pockets of all Californians.

An extensive and still growing body of toxicological and epidemiological studies confirms the link between proximity to oil production and adverse health outcomes. Based on its review of these studies, the California Oil and Gas Public Health Rulemaking Scientific Advisory Panel convened by CalGEM concluded with a "high level of certainty" that (1) "health-damaging air pollutants, including criteria air pollutants and toxic air contaminants, are more concentrated near [oil and gas drilling] activities compared to further away," and (2) serious harm to the public is occurring within 1 kilometer (3,200 feet) of oil activities, particularly adverse birth and

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[60] M. Frazier, *Gas Companies Are Abandoning Their Wells, Leaving Them to Leak Methane Forever*, Bloomberg, Sept. 17, 2020, https://www.bloomberg.com/news/features/2020-09-17/abandoned-gas-wells-are-left-to-spew-methane-for-eternity.

[61] EPA uses a VOC:Methane ratio of 0.278 in the 2016 Oil and Gas CTG. CTG at 5-7.

[62] *See, e.g.,* John Cox, *State Finds 27 Oil Wells Leaking Methane in Arvin-Lamont Area*, Bakersfield Californian, June 1, 2023, https://www.bakersfield.com/news/state-finds-27-oil-wells-leaking-methane-in-arvin-lamont-area/article_52120332-00da-11ee-b466-83e7f8b280c5.html; Kyle Ferrar, *FracTracker Finds Widespread Hydrocarbon Emissions from Active and Idle Oil and Gas Wells and Infrastructure in California*, FracTracker Alliance, Aug. 22, 2022, https://www.fractracker.org/2022/08/fractracker-finds-widespread-hydrocarbon-emissions-from-active-idle-oil-and-gas-wells-and-infrastructure-in-california/; CalGEM, *Well Inspections and Repair Updates* (last updated May 17, 2023), https://www.conservation.ca.gov/well-inspections-repair-updates#:%7E:text=July%2019%2C%202022,all%20leaks%20are%20properly%20fixed.&text=All%20six%20wells%20previously%20found%20to%20be%20leaking%20methane%20are%20repaired.,-Post%2Drepair%20inspections.

[63] Kyle Ferrar, *People and Production: Reducing Risk in California Extraction*, FracTracker Alliance, Dec. 17, 2020, https://www.fractracker.org/2020/12/people-and-production/.

respiratory outcomes.[64] The Panel also found that such harm will remain ongoing until a full phaseout of neighborhood drilling.[65]

Indeed, CalGEM issued a Finding of Emergency in December 2022 acknowledging the direct and significant health impacts associated with proximity to oil production at distances less than 3,200 feet.[66] The agency's emergency finding closely tracks the California Legislature's earlier findings that there are "direct health impacts from proximity to oil extraction," with such negative impacts "disproportionately" experienced by "Black, indigenous, and people of color . . . who are most likely to live in close proximity to oil extraction activities and who are the most vulnerable to the negative impacts of climate change."[67] Based on these concerns, CalGEM found that urgent action was "necessary for immediate preservation of the public peace, health, safety, or general welfare."[68]

More recently, empirical modeling performed by researchers at the University of California Santa Barbara and published in a peer-reviewed study has confirmed earlier research that a greater distance of separation from oil and gas wells results in fewer deaths due to reduced air pollution, particularly in "disadvantaged communities."[69]

Thus, the proposed SIP's exemption for low-producing wells is likely to lead to disproportionate health and environmental impacts on communities already overburdened by pollution. EPA should reject the SIP, but at minimum, evaluate the SIP's environmental justice consequences of the low-producing and idle well exemption, as discussed above.

C. Absent RACT, extended VOC leaks are likely at low producing and idle well sites.

EPA repeatedly expressed concern over the potential for active production, light-oil wells to leak VOCs over extended periods of time in connection with its initial partial disapproval of CARB's rules. That same rationale applies equally to low producing and idle wells, whether they involve light oil or heavy oil.

For example, EPA initially disapproved of subsections 95668(c)(4)(F) and 95668(d)(9) of the CARB Oil and Gas Methane Rule because they "potentially allowed a leak to go unrepaired for an additional year after being identified," whereas "the 2016 Oil and Gas CTG does not allow for

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[64] Letter from Cal. Oil and Gas Public Health Rulemaking Scientific Advisory Panel, Response to CalGEM Questions at 1-11 (Oct. 1, 2021), https://www.conservation.ca.gov/calgem/Documents/public-health/Public%20Health%20Panel%20Responses_FINAL%20ADA.pdf.
[65] *Id*. at 12-14.
[66] CalGEM, SB 1137 First Emergency Implementation Reguls.: Notice of Proposed Emergency Rulemaking Action at 2-3 (Dec. 19, 2022), https://www.conservation.ca.gov/calgem/Documents/SB%201137%20%20Emergency%20Regulations%20-%20Rulemaking%20Notice.pdf.
[67] *Id*. at 3 (quoting S.B. 1137, § 1, 2022 Leg., Reg. Sess. (Cal. 2022)).
[68] *Id*. at 2.
[69] Ranjit Deshmukh et al., *Equitable Low-Carbon Transition Pathways for California's Oil Extraction*, 8 Nature Energy 597, 600, 603 (2023), https://doi.org/10.1038/s41560-023-01259-y.

this extended timeline."[70] But failure to apply RACT inspection requirements to components used at low producing and idle well site could have an even worse effect—allowing leaks to continue indefinitely.

Similarly, EPA initially disapproved of Subsections 95668(c)(3)(D)(1)(a), (c)(4)(D)(1)(a), (d)(6)(A)(1) and subsections 95669(h)(4)(A)(1) and (i)(5)(A)(1) of the CARB Oil and Gas Methane Rule, for "provid[ing] an open-ended and potentially indefinite period during which a leak could remain unrepaired."[71] Again, the same rationale applies to exempting low producing and idle wells from inspections.

As a third example, EPA initially disapproved of Subsection 95669(i)(1) of the CARB Oil and Gas Methane Rule, which required leaks of 1,000–9,999 ppm to be repaired within 14 days, compared to the Oil and Gas CTG's recommendation that operators attempt repairs within 5 days of the detected leak.[72] Plenty of wells in California are leaking at higher levels for longer time periods due to the low production exemption, and go undetected but for community science.[73]

D. EPA has offered no rationale for excluding low-producing and idle light-oil wells from RACT.

As discussed above, idle and marginally producing wells are a significant source of VOC emissions,[74] yet EPA has erroneously interpreted low production wells as falling outside the scope of the instant rulemaking. Accordingly, EPA has made no attempt to analyze whether an exemption for idle wells would be justified for any reason, such as inspections with optical gas imaging failing to "expedite attainment."[75] Indeed, such a claim would be unsupportable in light of EPA's own admission that OGI monitoring programs have an effectiveness rate of "40 to 99 percent" emissions reductions.[76] Likewise, EPA has made no claim and offered no evidence that inspections at low production and idle light-oil wells would be economically infeasible, to the extent economic feasibility is a permissible limitation (see below). As a result, EPA's failure to require RACT for low producing and idle wells is wholly unsupported. Finalizing the proposed rule in this respect would be arbitrary, capricious, and an abuse of discretion.[77]

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[70] 89 Fed. Reg. at 36732.
[71] *Id*.
[72] *Id.* at 36733.
[73] Wilson, *supra*.
[74] *See also* Oil and Gas CTG at 9-19 ("[F]ugitive emissions from components are a significant source of VOC emissions from well sites and gathering and boosting stations.").
[75] *See Natural Resources Defense Council v. E.P.A.*, 571 F.3d 1245, 1252 (D.C.Cir. 2009) (stating that "EPA ha[s] discretion to conclude that a measure was not 'reasonably available' if it would not expedite attainment").
[76] Oil and Gas CTG at 9-20.
[77] *See Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (stating that agency action is arbitrary and capricious if the agency "entirely failed to consider an important aspect of the problem"); *Sierra Club v. United States EPA* (3d Cir. 2020) 972 F.3d 290, 305 ("While we defer to the agency's expertise, the agency's decisions must nevertheless be rational and supported by record evidence").

III. California's SIP is legally deficient because it fails to apply RACT requirements to VOCs emitted from wells producing heavy oil.

California's proposed SIP fails to meet Clean Air Act requirements because it exempts wells producing heavy oil from RACT requirements. Any well producing oil with an API gravity of 20 degrees or less would be exempt from the leak detection requirements under the SIP.[78] Because a large proportion of production in California would qualify as heavy oil, the exemption leaves substantial VOC emissions unaddressed. Moreover, while the exemption appears as a recommendation in the Oil and Gas CTG, this document is mere guidance and EPA admits that it is states' duty to conduct a case-by-case analysis to determine when, as here, the federal guidance does not go far enough toward achieving RACT.[79]

A. VOCs from heavy oil are a huge source of ozone-causing emissions in California.

Heavy oil makes up the vast majority of production in California. In 2018, 68% of California's crude oil production was heavy.[80] According to CalGEM production data, 74% of the state's production over the last three years has been crude with API gravity less than 20 degrees.[81] And of the 65,019 unplugged oil and gas production wells in the state, 51,743 (79.6%) reported production of oil with an average API gravity value of less than 20 degrees, based on a ten-year average of oil API values.[82]

The most recent figures from the U.S. Energy Information Administration showed that 91% of California's oil production in February of 2024 came from oil with an API gravity of 30 degrees or lower.[83] A 2009 report quotes Chevron as stating that "'[h]eavy oil makes up approximately 80 percent of the crude oil production in the California fields.'"[84] Similarly, a 2017 report from the Center for Biological Diversity found that "three-quarters of the state's current oil production is composed of very dirty crude that rivals Canada's tar sands crude and diluted bitumen in terms of its lifecycle greenhouse gas emissions and climate impacts."[85] This report also found that "[n]early two-thirds of remaining oil reserves in 18 of the largest oil fields in the San Joaquin and

[78] 17 Cal. Code Regs., § 95669(c)(2).
[79] Wood Memo at 2.
[80] California Energy Commission, Petroleum Watch (Feb. 2020), https://www.energy.ca.gov/sites/default/files/2020-02/2020-02_Petroleum_Watch_ADA_0.pdf
[81] Letter from Kyle Ferrar at 2.
[82] *Id.*
[83] U.S. Energy Information Administration, *Petroleum & Other Liquids*: *Crude Oil and Lease Condensate Production by API Gravity* (Released April 30, 2024),
[84] Communities for a Better Environment (CBE), *The Increasing Burden of Oil Refineries and Fossil Fuels in Wilmington, California and How to Clean them Up!* at 28 (2009), https://www.cbecal.org/wp-content/uploads/2012/05/wilmington_refineries_report.pdf?fbclid=IwZXh0bgNhZW0CMTAAAR1yssXK7gUeL6kJWxV39HEhroqOn2cKqYsleyQfpXm53fqWzy4LfiLNe68_aem_AdnFoe9mfJI2xzBwTabZsPHKZ3bVtwy76uJFVwiPMDgo6qAa44TSOSNEZhIiQFp3MUvW9I6sa63tZzh09Udsun1g.
[85] Shaye Wolf, PhD & Kassie Siegel, *Oil Stain: How Dirty Crude Undercuts California's Climate Progress*, Center for Biological Diversity (Nov. 2017), https://www.biologicaldiversity.org/programs/climate_law_institute/energy_and_global_warming/pdfs/Oil_Stain.pdf

Los Angeles Basins are also very dirty, totaling 6.1 billion barrels of particularly climate-damaging crude."[86]

Collectively, these estimates consistently show that the majority of oil production in California is heavy and that a loophole exempting heavy oil from RACT would swallow the rule, greatly reducing the efficacy of the SIP for VOCs. Not only is the majority of crude oil heavy, it accounts for a greater portion of extraction each year.[87]

According to a 2017 International Energy Agency survey, 96.5% of thermal enhanced oil recovery in the United States is performed in California.[88] In 2020, Kern County's Midway-Sunset oilfield produced more than 20 million barrels of oil.[89] Oil from this field is heavy crude. Chevron markets oil from Midway Sunset "at 13° API gravity and USGS records indicate gravities below 11° API."[90] Midway-Sunset is California's most productive field, despite its oils "grow[ing] heavier and more complex as it has aged, while air quality in the surrounding region constitutes the worst in the nation."[91] Midway Sunset "has [barrel-for-barrel] greenhouse gas (GHG) emissions that rival Canadian oil sands."[92]

California's second largest oilfield by volume is South Belridge in Kern County. It produced 18.4 million barrels of oil in 2020.[93] This oil is also heavy crude: "Crude from California's South Belridge field, north of Midway-Sunset, ha[d] an average API gravity of 15 degrees."[94] Kern County's Kern River and Cymric oil fields, produced 16.3 and 11.6 million barrels, respectively, in 2020. Each of these fields similarly require energy-intensive enhanced oil recovery to extract the heavy oil in the formations. Another large oilfield, Wilmington in Los Angeles County, produced 10.2 million barrels in 2020.[95] The Wilmington oilfield production relies heavily on waterflooding to extract the oil.[96] The Oil and Gas CTG estimated that the Los Angeles basin has the highest concentration of new wells per site, with the San Joaquin basin sixth on the list, and the Ventura Basin ranked at eleventh.[97]

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[86] *Id.*
[87] J. Fleming, *Killer Crude: How California Produces Some of the Dirtiest, Most Dangerous Oil in the World*, Center for Biological Diversity (June 2021), https://www.biologicaldiversity.org/programs/climate_law_institute/pdfs/June-2021-Killer-Crude-Rpt.pdf
[88] California Energy Commission, *Petroleum Watch* (Dec. 2021), https://www.energy.ca.gov/sites/default/files/2021-12/2021-12_Petroleum_Watch_ADA.pdf.
[89] CalGEM, Annual Oil and Gas Report – 2020 (2023), p. 13.
[90] Deborah Gordon & Samuel Wojcicki, *Drilling Down on Oil: The Case of California's Complex Midway Sunset Field*, Carnegie Endowment, Mar. 15, 2017, https://carnegieendowment.org/posts/2017/03/drilling-down-on-oil-the-case-of-californias-complex-midway-sunset-field?lang=en.
[91] *Id.*
[92] *Id.*
[93] CalGEM, 2020 Annual Report, p. 13.
[94] Judith Lewis Mernit, *Why Does Green California Pump the Dirtiest Oil in the U.S.?*, Yale Environment 360, Oct. 19, 2017, https://e360.yale.edu/features/why-does-green-california-pump-the-dirtiest-oil-in-the-u-s?fbclid=IwZXh0bgNhZW0CMTAAAR0dTBVjnyseUeJpKsneRWk-MqpaD9-_51lA-wFP0-jkpo9u13sjVpk2QNY_aem_AdmbEimNjJNPtV9WcaBtBnh0Qq71ujWVq9-qxI8PAshFawny-m4iWegSHiYPPIF_NttawVNptsoHcw36FyrGRmmC.
[95] CalGEM 2020 Annual Report, p. 13.
[96] CalGEM Annual Report 2020, p. 44.
[97] Oil and Gas CTG at 9-8 to -9.

Heavy oil resources "require more energy and water to produce and refine than lighter oils. They also contain sulfur and a range of polluting or toxic contaminants, including heavy metals, which must be removed and disposed of, further increasing costs and environmental impacts."[98] Heavy oils result in greater greenhouse gas emissions per barrel of oil produced, "especially due to gas-fired steam generators and the energy-intensive processing required to lighten or break down heavy oil into forms that can be transported and used."[99] For example, steam-injection produced heavy oil from the Midway Sunset field emits 725 kg CO2 per barrel, compared to 480 kg CO2 per barrel from "[t]ypical light West Texas oil."[100]

As heavy oil is difficult to access and process, California "extracts, refines, and burns some of the dirtiest oil on the planet."[101] For example, "[e]ach steam-injected well in Midway-Sunset requires the burning of natural gas to produce the necessary steam and lift the oil, which in some cases comes up freighted with as much as 95 times as much water as crude. Then, at the refining stage, producers use more natural gas to transform heavy crude into gasoline."[102] As a result, Midway-Sunset is "only one-and-a-half percent less carbon-intensive than tar sands oil from the Athabascan forests of Alberta."[103]

"Production of heavy oils…are known to produce secondary organic aerosols (SOAs) that make up fine particulate pollution ($PM_{2.5}$)),"[104] which is tied to increased risk for cancer, diabetes and various lung and heart problems. A recent study found that production of Albertan oil sands is the leading source of air pollution in North America, emitting twice as much SOAs as car and truck exhaust."[105] As VOCs "are important precursors" to SOAs,[106] the link between SOAs and heavy oil further confirms that heavy oil is a major source of VOCs.

These extraction operations are a significant source of VOCs. A 2015 air quality monitoring study from the South Coast AQMD demonstrated that VOC emissions from oil and gas wells are

[98] E. Allison & B. Mandler, *Heavy Oil: Abundant but hard to work with, heavy oil has some specific environmental impacts*, American Geosciences Institute, 2018, https://www.americangeosciences.org/sites/default/files/AGI_PE_HeavyOil_web_final.pdf.
[99] *Id.*
[100] *Id.*
[101] Judith Lewis Mernit, *Why Does Green California Pump the Dirtiest Oil in the U.S.?*, Yale Environment 360, Oct. 19, 2017, https://e360.yale.edu/features/why-does-green-california-pump-the-dirtiest-oil-in-the-u-s?fbclid=IwZXh0bgNhZW0CMTAAAR0dTBVjnyseUeJpKsneRWk-MqpaD9-_51lA-wFP0-jkpo9u13sjVpk2QNY_aem_AdmbEimNjJNPtV9WcaBtBnh0Qq71ujWVq9-qxI8PAshFawny-m4iWegSHiYPPIF_NttawVNptsoHcw36FyrGRmmC.
[102] *Id.*
[103] *Id.*
[104] Liggio, J. et al., Oil sands operations as a large source of secondary organic aerosols, Nature 534, 91-94 (2016), available at https://www.nature.com/articles/nature17646
[105] Gordon & Wojcicki, *supra* (citing John Liggio, et al., *Oil sands operations as a large source of secondary organic aerosols* (May 25, 2016), https://www.nature.com/articles/nature17646).
[106] Jookjantra, *Formation potential and source contribution of secondary organic aerosol from volatile organic compounds*, J. Envtl. Quality, at 1017. *See also id.* (identifying fuel evaporation and vehicle exhaust as major sources of VOCs contributing to SOAs), https://acsess.onlinelibrary.wiley.com/doi/epdf/10.1002/jeq2.20381.

considerably underestimated, and oil and gas wells actually contribute to more than half of the district's stationary source VOC emissions.[107]

Heavy oil wells are also located close to communities and raise serious environmental justice concerns. The Wilmington/Carson area of Southern California has "the highest concentration of refineries in California" including "heavy oil drilling in residential areas."[108] Many of California's heavy oil-producing fields "operate in densely populated areas, meaning that oil drilling occurs dangerously close to millions of Californians," including disproportionate drilling in "communities of color already suffering from severe environmental pollution."[109] Wilmington oil field contains heavy oil that relies largely on energy-intensive waterflood for extraction.

Many of the leaking wells identified in California over the past two years involved heavy oil, including heavy-oil wells operated by Sunray Petroleum, Inc in the HoodBloemer lease in the Morningstar neighborhood of Bakersfield, which community thermographers discovered in the spring of 2022.[110] The investigation of the Sunray wells led to the discovery of 49 additional leaking wells in the region—all of which "reported average API values of under 20°, and have therefore avoided detection," which "is often the issue" in California, due to deteriorating oil and gas infrastructure at heavy well sites.[111]

B. Absent RACT, widespread and extended VOC leaks are likely at heavy oil wells.

A SIP that only enforces RACT requirements for a small fraction of wells cannot meet the requirements of the Clean Air Act, which requires the inclusion of "enforceable emission limitations, and such other control measures means or techniques ... as may be necessary or appropriate to provide for attainment of such standard in such area by the applicable attainment date."[112]

For the same reasons discussed in Part I, above, the concern EPA demonstrated in its initial disapproval of portions of CARB's Oil and Gas Methane Rule applies equally to heavy oil wells.[113] Just like light-oil wells, heavy-oil wells have the potential to leak VOCs over extended periods of time. EPA specifically faulted the previous CARB Oil and Gas Methane Rule because it "did not capture all storage tanks in the oil and gas sector in the state that are required to meet RACT, the Rule allowed delay of leak repairs in several sections, and that there were several

[107] FluxSense, *Using Solar Occultation Flux and other Optical Remote Sensing Methods to measure VOC emissions from a variety of stationary sources in the South Coast Air Basin* at 3, 6 (Sept. 14, 2017), http://www.aqmd.gov/docs/default-source/fenceline_monitroing/project_2/fluxsense_project2_2015_final_report.pdf?sfvrsn=6.
[108] CBE, *supra*, at 3.
[109] CBD, supra, at 1.
[110] Letter from Kyle Ferrar at 3.
[111] *Id.*
[112] Clean Air Act, § 172(c)(6); 110(a)(2)(A)
[113] *See* 89 Fed. Reg. at 36732-33 (articulating concerns about prior versions of CARB's rules that allowed leaks to go undetected and/or unrepaired for unacceptable periods of time).

exemption in the Rule that reduced the Rule's stringency with respect to RACT."[114] The same concerns EPA raised for storage tanks exemptions applies even more to the vast number of wells that would be exempt under this SIP.

Failure to apply RACT inspection requirements to components used at heavy oil wells could allow leaks to continue indefinitely, thereby cancelling out the rationale for the exemption, even assuming heavy oil wells emit lower amounts of VOCs.[115] Neither the SIP nor the EPA has provided support that the exemption would not result in significant VOC emissions. On the contrary, an exemption that applies to heavy oil would effectively release the vast majority of oil wells from RACT requirements.

IV. EPA Must Revise Its Regulations To Require RACT at Wellhead-Only Sites.

For the same reasons discussed above, EPA's exemption from RACT for wellhead-only sites is illogical and inconsistent with the requirements of the Clean Air Act.[116] Wellhead-only sites are still subject to leaks, as such sites still contain at the very least a flanged casing hanger where a well can be shut-in with a flange seal and cap. The flange seals can fail due to aging or corrosion and deterioration. Casing hanger flanges have been a documented source of many leaks identified by community scientists using optical gas imaging (OGI) technology.[117] The Oil and Gas CTG recognizes that "[f]ugitive emissions occur when connection points are not fitted properly or when seals and gaskets start to deteriorate."[118] The same risk of deterioration is present at wellhead-only sites. In other words, wellhead-only sites still contain "fugitive emissions components," which EPA defines, in relevant part, as—

> any component that has the potential to emit fugitive emissions of VOC at a well site or gathering and boosting station, including but not limited to valves, connectors, pressure relief devices, open-ended lines, flanges, covers and closed vent systems not already subject to equipment and fugitive emissions monitoring, thief hatches or other openings on a controlled storage vessel, compressors, instruments and meters.[119]

Likewise, the same types of downhole risks that lead to leaks in other wells—such as casing age, proximity to wells used for cyclic steaming/steam flooding, etc.—are present at wellhead-only sites. The Oil and Gas CTG acknowledges that "[c]hanges in pressure, temperature, or mechanical stresses can also cause components or equipment to emit fugitive emissions."[120]

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[114] USEPA Region IX Technical Support Document for EPA Rulemaking, Cal. SIP, GHG Emission Standards for Crude Oil and Natural Gas Facilities. (Apr. 2024).
[115] *Cf.* 89 Fed. Reg. at 36735 (claiming "that monitoring for well sites producing heavy oils would not be sufficiently cost effective, as leaks associated with heavy oil production will generally emit less VOC").
[116] *See* Oil and Gas CTG at 9-1 (exempting sites that "only contain[] one or more wellheads").
[117] *See* Letter from Kyle Ferrar at 4, Appendix B (documenting leaking wellheads in the Bakersfield and Morningstar areas of Kern County in June 2022, including pictures indicating the location on the wellheads where the leaks occurred).
[118] *Id.* at 9-2.
[119] *Id.*
[120] *Id.*

Indeed, California's Geologic Energy Management Division treats wellhead-only sites as posing special concern, applying a presumption that a well has been deserted and must be plugged and abandoned in the interests of human health and the environment if the well's "production facilities or injection equipment has been removed from the well site for at least two years."[121] The State views deserted wells with no solvent operator as "public nuisances," deeming it "essential, in order to protect life, health, and natural resources that those oil and gas wells and facilities be abandoned, reabandoned, produced, or otherwise remedied to mitigate, minimize, or eliminate their danger to life, health, and natural resources."[122]

RACT requirements for wellhead-only sites could have prevented or mitigated the leaks discovered in Kern County, where many of the leaks came from wellheads not connected to any other equipment.[123]

V. Substantial evidence contradicts EPA's conclusion that RACT is economically infeasible.

EPA's economic feasibility evaluation is misplaced. RACT analyses are not subject to an economic analysis, and even if they were, the EPA's analysis in this instance does not support an exemption for heavy oil wells, wellhead only sites, or low production and idle wells.

As an initial matter, it is important to note that the Clean Air Act itself contains no economic feasibility caveat on the requirement for non-attainment states to utilize RACT. As regulated entities have no incentive to spend money to decrease their pollution in the absence of regulation, laws like the Clean Air Act should play a technology-forcing role to internalize the externality of air pollution. Moreover, economic analysis is, at best, an incomplete picture of the consequences of this SIP. At worst, it is misleading and obscures the true cost of pollution in ways that cannot be quantified into dollar amounts. The right to breathe healthy air or live on a sustainable planet is immeasurable and should not be weighed against the narrow pecuniary interests of the oil and gas industry.

Assuming *arguendo* that imposing an economic feasibility limitation on RACT is permissible under the Clean Air Act, the presumption still needs to be that readily available technology proven to reduce emissions *is* economically feasible. Here, RACT for VOCs is economically feasible at all well sites—whether idle, low producing, active, wellhead only, heavy-oil, or light oil—as RACT to detect leaks primarily involves operator-conducted inspections already in use by other sources in the source category (i.e., light-oil wells). Most importantly, benefits to human health and the environment from the additional reduction in VOCs will outweigh any added economic costs of more stringent regulation.

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[121] Cal. Pub. Res. Code, § 3237(a)(3)(B).
[122] Cal. Pub. Res. Code, § 3250.
[123] *See, e.g.,* Letter from Kyle Ferrar at 4, Appendix B (documenting wellhead leaks in the Bakersfield and Morningstar areas of Kern County in June 2022); CalGEM, *Well Inspections & Repair Updates* (last updated May 17, 2023) (discussing numerous leaks found between May 2022 and May 2023), https://www.conservation.ca.gov/well-inspections-repair-updates.

A. The Clean Air Act contains no exemption for economic infeasibility.

RACT is a technology-forcing standard designed to induce and require improvements in control technology and reductions in pollutant emissions.[124] The Clean Air Act itself does not contain a definition for "reasonably available control technology."[125] Indeed, EPA has long maintained that "RACT should represent the toughest controls considering technological and economic feasibility that can be applied to a specific situation" and that "[a]nything less than this is by definition less than RACT."[126] [127] "In determining RACT for an individual source or group of sources, the control agency, using the available guidance, should select the best available controls, deviating from those controls only where local conditions are such that they cannot be applied there and imposing even tougher controls where conditions allow."[128]

EPA first defined RACT in 1976 as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility."[129] However, it has since been determined that the RACT standard does not require economic feasibility under the Clean Air Act.[130] The Clean Air Act "envisions situations where standards currently economically or technologically infeasible will nonetheless be enforced,"[131] and Clean Air Act requirements are "expressly designed to force regulated sources to develop pollution control devices that might at the time appear to be economically or technologically infeasible."[132] Further, "[t]he Supreme Court has held that neither the Administrator nor a reviewing court may reject a SIP on the ground that it is economically or technologically infeasible."[133] Thus, EPA should not approve any of the RACT exemptions described above even if inspections at some well sites are purported to be economically infeasible.

B. To the extent relevant, categorical operator adoption is a proper measure of economic feasibility rather than individual operator costs.

To the extent economic feasibility is relevant to the analysis, RACT for VOCs at all well sites is still economically feasible. Rather than attempting a complicated cost-benefit analysis, economic feasibility "considers the cost of reducing emissions and the difference in costs between the

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[124] Strelow Memo at 2; *see also Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 492 (2001) (Breyer, J., concurring) (noting that technology forcing requirements "are still paramount in today's [Clean Air] Act").
[125] CAA § 172(c)(1), 42 U.S.C. § 7502(c)(1).
[126] Strelow Memo at 2.
[127] *Thomas*, 805 F.2d at 180; *see* Strelow Memo at 2.
[128] *Id.* at 2.
[129] *Thomas*, 805 F.2d at 180; *see* Strelow Memo at 2.
[130] *See Nat'l Steel Corp., Great Lakes Steel Div. v. Gorsuch*, 700 F.2d 314 (6th Cir. 1983) (finding EPA's approval of SIP based on RACT determinations reasonable even though requirements appeared technologically and economically infeasible); *see also* 1 Environmental Law in Real Est. & Bus. Transactions § 5.02 (2024) N. 14 ("the term 'reasonably available' does not require economic feasibility for each individual source.").
[131] *United States v. Ford Motor Co.*, 814 F.2d 1099, 1103–04 (6th Cir. 1987) (quoting S.Rep. No. 91–1196, p. 2–3 (1970)) ("Congress has the authority to demand that 'existing sources of pollutants either should meet the standard of the law or be closed down....', regardless of whether such standards are currently feasible.").
[132] *Union Elec. Co. v. E.P.A.*, 427 U.S. 246, 257, 96 S. Ct. 2518, 2525, 49 L. Ed. 2d 474 (1976).
[133] *Gorsuch*, 700 F.2d at 324 (citing *Union Elec. Co. v. EPA*, 427 U.S. 246, 265, 96 S.Ct. 2518, 2529, 49 L.Ed.2d 474 (1976)).

particular source for which RACT is being determined and other similar sources that have implemented emission reductions."[134] EPA presumes that "similar sources . . . bear similar costs for emissions reduction."[135] In particular—

> Economic feasibility rests very little on the ability of a particular source to 'afford' to reduce emissions to the level of similar sources. Less efficient sources would be rewarded by having to bear lower emission reduction costs if affordability were given high consideration. *Rather, economic feasibility for RACT purposes is largely determined by evidence that other sources in a source category have in fact applied the control technology in question*.[136]

EPA stresses that "[t]he affordability of implementing a control option should generally not be considered in the economic impact analysis because affordability is highly subjective and depends upon the economic viability of a particular source."[137] Therefore, "control options should not be eliminated solely on the basis of economic parameters that indicate they are not affordable by the source."[138]

C. RACT for VOCs, including optical gas imaging or Method 21 inspections, is already in use at other wells in the source category.

It is economically feasible to require RACT such as optical gas imaging (OGI) and Method 21 inspections and monitoring at all well sites (including heavy oil wells, wellheads, and low production wells), as such technology is already required and in use at active, light-oil wells nationwide, and as California goes beyond EPA's minimum recommendations in the Oil and Gas CTG and currently requires OGI or Method 21 inspections and monitoring at low-production, light-oil wells.[139] Likewise, other states such as Colorado already have regulations requiring leak inspections "at all well sites."[140]

For RACT to be economically infeasible, an operator would need to "contend[] that it cannot afford RACT and/ or may have to shut-down its operation if RACT controls are imposed," potentially opening the door to an economic impact analysis "consist[ing] of weighing the

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[134] U.S. EPA, National Service Center for Environmental Publications, *Procedures for Identifying Reasonably Available Control Technology for Stationary Sources of PM-10*, EPA-452/R-93-001, at 2-6 (Sept. 1992).
[135] *Id.*
[136] EPA, State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990; Supplemental, 57 Fed. Reg. 18,070, 18,074 (Apr. 28, 1992).
[137] U.S. EPA, National Service Center for Environmental Publications, *Procedures for Identifying Reasonably Available Control Technology for Stationary Sources of PM-10*, EPA-452/R-93-001, at 2-7 (Sept. 1992); *see also* 87 Fed. Reg. 53381, 53390 (Aug. 31, 2022) ("EPA has long held that '[e]conomic feasibility rests very little on the ability of a particular source to `afford' to reduce emissions to the level of similar sources. Less efficient sources would be rewarded by having to bear lower emission reduction costs if affordability were given high consideration.'") (citing E.P.A., State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990; Supplemental, 57 FR 18,070, 18,073 (proposed April 28, 1992)).
[138] *Id*.
[139] Cal. Code Regs., tit. 17, §§ 95666, 95669(a), (c)(2).
[140] Oil and Gas CTG at 9-34.

benefits (and costs) of the facility remaining open against those of closing."[141] Even then, a standard will be economically feasible as long as it "will not be such as to threaten the financial welfare of the affected firms or the general economy."[142]

In light of California already requiring leak inspections at low-producing and idle wells, Colorado already requiring leak inspections at "all well sites," and EPA already requiring leak inspections at active, light-oil wells, it would be an abuse of discretion for EPA to conclude that mandating similar leak inspections at all well sites nationally would threaten the financial welfare of the industry or general economy as a whole.

Moreover, as the economic feasibility analysis "of a given RACT limit should reflect, to the extent possible, consideration of the past, current, and future expected operating environment,"[143] the notion that additional OGI inspections would "threaten the financial welfare" of the oil industry is particularly absurd. Operators continue their historic trend of raking in obscene profits[144] while under ongoing scrutiny for lying for years about the negative effects of drilling activities. California has sued five of the world's largest oil companies for "engaging in a decades-long campaign of deception and creating statewide climate change-related harms in California" in order "to further their record-breaking profits at the expense of our environment."[145] Such actions have resulted in California "spen[ding] tens of billions of dollars to adapt to climate change and address the damages climate change has caused so far," and anticipating the "need to spend multiples of that in the years to come."[146] EPA must follow the "polluter pays" principle to ensure that the oil industry—which can well afford to do so—employs every possible technology to prevent harmful leaks and emissions at all of their well sites, as the absolute minimum step necessary to start triaging the damage these operators have already done to our health and climate.

It is also notable that California oil production is on the decline overall, as more and more consumers make the switch to clean energy and operators take steps in anticipation of the State's transition to a carbon-neutral economy by 2045, meaning that any added inspection costs will be temporary and will likely decrease each year as the industry continues to phase down production

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[141] EPA, *Procedures for Identifying Reasonably Available Control Technology for Stationary Sources of PM-10* at 2-7-2-8 (Sept. 1992).
[142] 43 Fed. Reg. 5939 (Feb. 10, 1978). *See also Sierra Club v. Tahoe Regional Planning Agency*, 916 F. Supp. 2d 1098, 1124 (E.D. Cal. 2013) (stating in a state-law case that "[t]he fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project." (quotation marks omitted)).
[143] 87 Fed. Reg. at 53383.
[144] *See* S. Reed, *Oil Giants Pump Their Way to Bumper Profits*, NY Times (Feb. 2, 2024) (noting that Exxon earned $36 billion in 2023 and Chevron earned $21.4 billion in 2023), https://www.nytimes.com/2024/02/02/business/oil-gas-companies-profits.html; S. Sadai, *Fossil Fuel Companies Make Billions in Profit as We Suffer Billions in Losses: 2024 Edition*, Union of Concerned Scientists (Apr. 17, 2024) (stating that "the combined profits of ExxonMobil, Chevron, Shell, and BP total[ed] over $100 billion" in 2023), https://blog.ucsusa.org/shaina-sadai/fossil-fuel-companies-make-billions-in-profit-as-we-suffer-billions-in-losses-2024-edition/.
[145] State of California, Department of Justice, *Attorney General Bonta Announces Lawsuit Against Oil and Gas Companies for Misleading Public About Climate Change*, Sept. 16, 2023, https://oag.ca.gov/news/press-releases/attorney-general-bonta-announces-lawsuit-against-oil-and-gas-companies.
[146] *Id.*

by plugging and abandoning more and more wells.[147] In fact, a study reviewing economically feasible methane mitigation strategies by sector determined that "the majority of economically feasible actions come from the oil and gas sector… oil and gas measures dominate the [potential] avoided warming from economically feasible actions."[148] Nevertheless, "[c]arbon emissions from the oil extraction process remained steady in California from 2000 to 2015, even as overall oil production fell by 30 percent over that same period," which means that the "carbon intensity"—and, thus, the health impact—of production has *increased*."[149]

RACT to address VOC emissions from *all* oil wells is necessary, readily available from a technological standpoint, and feasible for the oil industry to adopt.

D. The public health benefits of decreased VOCs—especially in frontline communities—far outweigh any RACT-related costs.

As discussed above, issues of individual-operator affordability should generally not come into play in RACT analysis. To the extent it is permissible to weigh costs and benefits under the Clean Air Act due to concerns about potential industry shutdowns, there is no doubt that the benefits of applying RACT to all wells outweigh any economic concerns.

Agencies "cannot put a thumb on the scale by undervaluing the benefits and overvaluing the costs of more stringent standards."[150] Cost-benefit analyses can be "biased against regulations that benefit health, welfare, and safety" when "decision-makers give greater weight to effects that can be quantified" and "reject more stringent alternatives that achieve additional, non-monetized benefits that outweigh the additional costs."[151]

A recent American Lung Association report illustrates the proper way to value "health, welfare, and safety benefits" by documenting the widespread public health benefits from an accelerated transition away from fossil fuels to zero-emissions transportation. The report estimates $1.2 trillion in public health benefits across the U.S. by 2050, including $95.5 billion in benefits in the Los Angeles area, $42.5 billion in the San Francisco area, and $12.4 billion in the San Diego

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[147] Executive Dept., State of Cal., Executive Order N-29-20 (Sept. 23, 2020), https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf.
[148] Ilissa Ocko et al, *Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming*, Environmental Research Letters, vol. 6, no. 5 (May 4, 2021), https://iopscience.iop.org/article/10.1088/1748-9326/abf9c8.
[149] K. Trout et al., *The Sky's Limit California: Why the Paris Climate Goals Demand that California Lead in a Managed Decline of Oil Extraction* at 17 (May 2018) (emphasis added), http://priceofoil.org/content/uploads/2018/05/Skys_Limit_California_Oil_Production_R2.pdf. *See also* Fleming, *supra.*
[150] *Center for Biological Diversity v. National Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198 (9th Cir. 2008).
[151] Cal. Legislative Analyst's Office (LAO), Improving California's Regulatory Analysis (Feb. 2017) at 11-12 (based on a review by the California Legislative Analyst's Office of twenty-two different standard regulatory impact assessments from various state agencies), https://lao.ca.gov/reports/2017/3542/Improving-CA-Regulatory-Analysis-020317.pdf. For example, the LAO criticized the California Department of Resources Recycling and Recovery's SRIA for the Compostable Materials regulation, because it "did not quantify the environmental benefits of any of the options it considered." *Id.* at 12-13.

area.[152] The cumulative health benefits in these regions also include avoiding nearly 14,000 premature deaths, over 383,000 asthma attacks, and over 1.9 million workdays lost due to cleaner air.[153]

As noted above, ozone is a major contributor to asthma. According to the Centers for Disease Control and Prevention (CDC), in 2021 California was the state with the highest number of deaths caused by asthma, totaling 352 deaths that year.[154]

Similarly, an expert report examining just the health benefits related to reduced exposure to PM2.5 with a 3,200-foot setback between sensitive receptors and oil and gas wells showed a health benefit of somewhere between $500 million and $828 million annually due to a decline in premature mortality.[155] According to a CARB estimate, if PM2.5 were "reduced to background levels," each year around 7,200 premature deaths, 1,900 hospitalizations, and 5,200 emergency room visits would be avoided.[156] As discussed above, heavy oil fields underly the many oil wells interspersed throughout populated regions in California—especially the Los Angeles area and Kern County—illustrating that RACT leading to early leak detection and prompt leak repairs at heavy oil wells will result in substantial cost savings from a public health standpoint. Similarly, low-producing and idle wells, and isolated wellheads are prevalent in frontline communities.

VI. California's SIP Does Not Require Sufficiently Frequent Monitoring and Reporting To Qualify As RACT.

A. Monitoring Frequency and Methodology

Federally, the Oil and Gas CTG only recommends semiannual monitoring of wells, using OGI or Method 21 at a detection frequency of 500 ppm.[157] At the state level, CARB's rules require quarterly emissions monitoring of wells using Method 21, with a detection frequency of 1,000 ppm.[158] Both the federal guidelines and the state rules do not go far enough toward achieving RACT in terms of the monitoring frequency and degree of technological sensitivity needed to promptly detect and stop VOCs emissions, for three reasons.

First, to the extent California utilizes a Method 21 detection frequency of 1,000 ppm, this frequency is inconsistent with the CTG and must be changed. Even 500 ppm is a relatively high threshold, considering "a typical handheld camera can accurately detect emissions at

[152] Am. Lung Assn., *Zeroing in on Healthy Air* at 3, 12 (2022), https://www.lung.org/getmedia/13248145-06f0-4e35-b79b-6dfacfd29a71/zeroing-in-on-healthy-air-report-2022.pdf.
[153] *Id.* at 12.
[154] Centers for Disease Control and Prevention, *Most Recent Asthma State or Territory Data*, https://www.cdc.gov/asthma/most_recent_data_states.htm (last visited May 31, 2024).
[155] James Bono, et al., *Recommendations to CalGEM for Assessing the Economic Value of Social Benefits from a 3,200' Buffer Zone Between Oil & Gas Extraction Activities and Nearby Communities* at 14-16 (Dec. 2021).
[156] California Air Resources Board, *Health & Air Pollution*, https://ww2.arb.ca.gov/resources/health-air-pollution (last visited May 31, 2024).
[157] Oil and Gas CTG at 3-7 to -8.
[158] Cal. Code Regs. tit. 17, § 95669.

concentrations of down to 20 ppm" and "[e]ven an off-the shelf Klein methane detector costing just $100 at Home Depot has a detection limit near 50 ppm."[159]

Second, the increased frequency at use in California illustrates that such standards are technologically possible and, to the extent relevant, economically feasible. Even so, monthly emissions monitoring would be much more protective of human health and the environment. The Oil and Gas CTG agrees. For example, the CTG estimates an additional 20 percent in VOC emissions reductions with monthly monitoring compared to quarterly monitoring with OGI inspections.[160] Data also shows better emissions reduction with more frequent inspections using Method 21.[161] Frequent inspections facilitate prompt repair, which can have a huge impact. In fact, one study showed that repairing leaks reduced emissions by about 8,400 metric tons methane.[162] As discussed *infra*, the Clean Air Act's standards are "expressly designed to force regulated sources to develop pollution control devices that might at the time appear to be economically or technologically infeasible,"[163] and any cost increase related to monthly monitoring can and should be absorbed by the oil industry. Like the heavy oil exemption, the low monitoring frequency recommended in the Oil and Gas CTG is a non-binding guidance that California-specific information warrants reconsidering here.[164]

Third, California's SIP would allow a decrease in monitoring frequency if a well had no violations for five quarters.[165] This is based on a logical fallacy—the supposition that a lack of leaks in the past is an indicator that there will be no leaks in the future. In reality, the entirety of the discussion about the frequency of VOC leaks from oil wells underscores the need for to maintain constant vigilance, regardless of whether a particular well has a history of leaks in the recent past.

B. Reporting Frequency

The oil and gas RACT provisions are unenforceable, in violation of the Clean Air Act, because they lack adequate reporting requirements. Without timely reporting requirements that parallel the necessary monitoring frequency discussed above, enforcement agencies and members of the public cannot gauge the industry's compliance with RACT. EPA has rejected other SIPs because their lax reporting requirements hindered the state and local residents from accessing the information needed to enforce the provision of the SIP.[166]

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[159] Letter from Kyle Ferrar at 2.
[160] Oil and Gas CTG at 9-20.
[161] *Id.* at 9-21 to -22.
[162] Lucy Cheadle et al., *Leak detection and repair data from California's oil and gas methane regulation show decrease in leaks over two years*, Environmental Challenges at 5 (2022), https://www.sciencedirect.com/science/article/pii/S2667010022001202.
[163] *Union Elec. Co. v. E.P.A.*, 427 U.S. 246, 257 (1976).
[164] Wood Memo at 2.
[165] EPA, *TSD for EPA's Rulemaking for the California State Implementation Plan* at 9 (April 2022).
[166] *See, e.g.,* 88 Fed. Reg. 29827 (May 9, 2023) (disapproving Colorado SIP that only requires operators to maintain records)

Emission limitations under the Clean Air Act must be enforceable.[167] Without a mechanism to evaluate compliance, enforcement is impossible. Courts have previously granted petitions for review based on EPA's failure to explain how it could ensure compliance with a Clean Air Act requirement without requiring that the relevant data be recorded and reported.[168]

While California's SIP requires *some* degree of reporting, the annual reporting timeline is insufficient.[169] As discussed above, in initially disproving portions of California's air rules, EPA expressed concern that the wording could have facilitated extended leakage from wells prior to detection and/or delayed repair timelines, thereby contributing to the problem of ozone pollution rather than combating it. Without timely reporting, there is an inability "for public insight into how the plants are operating, and therefore no way for interested members of the public, or more crucially, the EPA itself, to conduct oversight."

Similarly, with limited oversight other than annual reporting, there is the potential for an operator to be aware of leaks and not fix the issue for extended time periods, or for an operator to choose not to conduct inspections for a year and deal with the consequences. Due to historically low bonding, California has dealt with many instances of operators deliberately deserting their wells and rejecting their regulatory obligations in favor of bankruptcy.[170]

Under the annual reporting requirements of California's SIP, it is possible for a well to be leaking fugitive emissions of VOCs for an entire year before regulators or members of the public learn about the issue. Annual reporting thus defeats the purpose of RACT overall—to help states come into attainment by decreasing source emissions—and cancels out the prompt-detection-and-repair rationale for requiring more frequent inspections in the first place.

VII. Conclusion

Together, the heavy oil exemption in the Oil and Gas CTG and SIP, the CTG's low-production exemption, and the wellhead-only exemption codified in EPA's regulations, and California's monitoring and reporting practices create exemptions that swallow the RACT rule for monitoring and reducing fugitive emissions from oil and gas wells. In other words, "[w]hile the reasoning supporting each element is questionable individually, joined together they are decidedly worse than the sum of their parts."[171]

Californians, especially those in environmental justice communities, have suffered from poor air quality for far too long. Oil and gas activity is a major reason why residents are unable to breathe

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[167] *See* 42 U.S.C. § 7502(c)(6); *Ass'n of Irritated Residents v. EPA*, 686 F.3d 668, 677-78 (9th Cir. 2012) (finding EPA approval of an unenforceable, discretionary plan element arbitrary and capricious).
[168] *See New York v. EPA*, 413 F.3d 3, 35-36 (D.C. Cir. 2005) (remanding to EPA so that the agency could either provide an acceptable explanation for its "reasonable possibility" standard or to devise an appropriately supported alternative).
[169] Cal. Code Regs. tit. 17, § 95673(a)(12).
[170] Kyle Ferrar, *Literally Millions of Failing Abandoned Wells*, FracTracker Alliance, Mar. 29, 2019, https://www.fractracker.org/2019/03/failing-abandoned-wells/. *See also Sierra Club,* 972 F.3d at 308 (acknowledging "under the CAA, [that] past practices of weighing economic factors have historically counseled against complete compliance").
[171] S*ierra Club*, 972 F.3d at 299.

healthy air. EPA has the legal duty to ensure that states are meeting the requirements of the Clean Air Act by imposing effective measures to reduce pollution. California's SIP fails to do so and must be rejected with instructions to the state to resubmit a plan that properly covers all well sites and incorporates environmental justice goals in its analysis. Likewise, EPA must revise the Oil and Gas CTG and the wellhead-only exemption in EPA's regulations implementing the Clean Air Act to ensure RACT is properly in use at all well sites nationally.

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