



February 26, 2024

Submitted via electronic mail (compliance@baaqmd.gov)

Re: Chevron 2022 Flare Minimization Plan

Dear BAAQMD,

Thank you for the opportunity to comment on Chevron's 2022 Flare Minimization Plan (FMP), and for meeting with members of Communities for a Better Environment (CBE) to explain technical elements of the FMP. CBE is submitting the following comments on Chevron's 2022 FMP, informed by decades of organizing alongside community leaders in Richmond to achieve environmental health and justice, as well as technical knowledge of the oil refining process, including flaring regulations and feasible flaring reductions. While these comments focus primarily on the 2022 FMP, we hope that lessons learned could translate to all future FMPs. We also have included suggestions for how BAAQMD could improve public accessibility and awareness of all FMPs, and the content contained within them.

CBE celebrates the intention behind BAAQMD's Rule 12-12, passed in 2005, to minimize the frequency and magnitude of flaring at five major refineries across the Bay Area. However, nearly 20 years have passed since 12-12 was adopted, and flaring remains a persistent issue at the Chevron facility. In fact, flaring has significantly increased in recent years, particularly with the construction of Chevron's new hydrogen facility. Unfortunately, Chevron's 2022 FMP attempts to normalize their flaring, and does not indicate sufficient effort on the part of Chevron to reduce *either* the frequency *or* the magnitude of flaring in recent years. This is clearly reflected in the 2022 FMP, and can be addressed through the following changes:

- 1. Improve and expand FMP reporting on the *magnitude* and *frequency* of flaring events.**
- 2. Ensure that Chevron focuses on relevant actions that occur during the FMP period and recent years, rather than the distant past.**
- 3. Ensure Chevron does not use data analysis and representation methods that are misleading, as is currently the case in the 2022 FMP.**
- 4. Ensure that safety and environmental health, not profit, drive Chevron's justifications for the (restricted) use of flaring.**
- 5. Explore how to reduce flaring at the Hydrogen Plant, a significant source of flaring at the Chevron Refinery that is under-addressed in the FMP.**
- 6. Amend BAAQMD flaring rules and tighten emissions standards further.**

7. **Enhance compliance monitoring, even before flaring rules have been revised.**
8. **Make flaring and FMP data more publicly accessible on the BAAQMD website.**

1. Improve and expand FMP reporting on the *magnitude* and *frequency* of recent flaring events.

For Richmond residents living near the Chevron refinery, flaring events are experienced as discrete events, in which large amounts of vent gas and pollutants are released directly into the air. Rule 12-12 reinforces this understanding of flaring events by focusing on both their *frequency* and *magnitude* – how often they occur, and how large the events are. However, Chevron’s 2022 FMP does not adequately capture either the frequency or magnitude of recent flaring events. For example, the Executive Summary presents graphs that focus on average daily vent gas flow and average daily emissions of methane, NMHCs, and SO₂ (aka VOCs and SO_x).¹ But this is misleading. Flaring does not occur on an *average* daily basis (except at the Hydrogen Facility, where flaring does occur on a daily basis, addressed later in this letter). Industrial flares are designed to combust large volumes of gases *all at once*, which can and do emit tons of SO_x and VOCs into already-overburdened communities. Thus, reporting emissions in terms of daily average does not convey how flaring occurs, and is experienced by surrounding community members (i.e., as discrete events, not daily average air quality).

Take as an example the recent unplanned flaring episode on November 27, 2023, which occurred over multiple hours stretching multiple calendar days, and released *millions* of standard cubic feet of vent gas, and *many thousands* of pounds of SO₂, methane, and NMHCs into the air. Such emissions are very harmful for air quality, health, and climate change. The serious impact of this specific event would not be captured in any of these graphs, instead spread out as a daily average.

In order to bring the 2022 FMP, and all future FMPs, into greater alignment with the intention behind Rule 12-12,² BAAQMD should require Chevron to:

1. Include additional graphs in the Executive Summary that indicate the *frequency* of flaring events over the past 5 years, as well as a more granular discussion of the frequency of flaring events during the FMP period in question. These should show dates when flaring occurred, and length of those events in hours. These graphs should also include a

¹ Non-Methane Hydrocarbons (NMHCs) are also generally known as Volatile Organic Compounds or VOCs. SO₂ is Sulfur Dioxide, also generally referred to as a broader class of Sulfur Oxides or SO_x.

² BAAQMD Rule 12-12 states that the “purpose of this rule is to reduce emissions from flares at refineries by minimizing the frequency and magnitude of flaring.” See BAAQMD, “Rule 12-12,” July 20, 2005, https://www.baaqmd.gov/~media/dotgov/files/rules/refinery-rules-definitions/rg1212_20211103-pdf.pdf.

The inclusion of these graphs is also supported by the requirements outlined in the recent Rule 6-5 Settlement Agreement between BAAQMD and Chevron, Attachment A #5.

breakdown of “Emergency” vs. “Non-Emergency” flaring events.³ These graphs could help reveal temporal or seasonal flaring patterns to assess and target for further reduction.

2. Include additional charts in the Executive Summary that capture the *magnitude* and *impact* of recent flaring events, particularly those during the relevant FMP period. For example, BAAQMD should require Chevron to include a chart of the 10 largest flaring events by vent gas, and by emissions, over the previous 5 year period. Chevron should also be required to include a chart of the 5 largest flaring events over the relevant FMP period. The charts should include (at a bare minimum) the date, duration, emissions, and root causes of each event, in order to help identify patterns across the refinery’s largest and most harmful flaring events. These charts would capture the *magnitude* of each of these events better than the existing graphs and tables. In addition, Chevron should provide a chart showing total flaring emissions of SOx and VOCs each year over time, to investigate whether emissions are increasing annually.

Furthermore, Section 5.1.4 (Past Flaring Requiring Causal Analyses) does not include any quantitative discussion of each of the flaring events, making it difficult to understand the relative magnitude and impact of each event. BAAQMD should require Chevron to include the magnitude of each event in this section of the FMP, as this information is already collected and publicly available on the BAAQMD website (in the form of total vent gas emissions, and SO₂, NMHCs, and methane released). Altogether, a greater focus on the frequency and magnitude of flaring in the FMP will increase Chevron accountability, BAAQMD oversight and public awareness, bringing the FMP into greater alignment with Rule 12-12.

2. Ensure that Chevron focuses on relevant actions that occur during the FMP period and recent years, rather than the distant past.

Chevron’s 2022 FMP disproportionately focuses on their past actions, rather than their recent actions. This leads to a long, unwieldy report that is difficult to digest, and creates the impression that Chevron has done much more to reduce flaring than it actually has in recent years. For example, Section 3.0 – *Past Reductions* – is 6 pages long, and includes 27 total actions. However, 24 of those actions (89%) occurred *more than 5 years* before the 2021-2022 FMP reporting year. In fact, only *one* action was reported during the 2021-2022 FMP period, suggesting that the vast majority of Chevron’s work to reduce flaring occurred nearly 20 years ago. Similarly, Table 5-1 (Past Flaring During Major Maintenance Activities and Improvements Implemented), which lists lessons learned from flaring events during maintenance beginning in 2001, suggests a similar trend. The table spans 9 pages, but *no new actions have been reported since 2016, more than 5 years before the 2022 FMP period.*

³ CBE noted that more than 95% of flaring events over the 2021-2022 period (21 of 22 events) were considered “Not an emergency.” Only one was considered an “Emergency,” despite Chevron’s repeated emphasis on the necessity of flaring in cases of emergency. The vast majority of flaring events that occurred during the 2021-2022 FMP period were non-emergency. See “Annual Update of Flare Minimization Plan - Chevron Richmond Refinery 2022,” September 30, 2022, https://www.baaqmd.gov/~media/files/compliance-and-enforcement/flares/2023/chevron-2022-fmp-annual-update-public-pdf.pdf?rev=556a0fa7260c4d0fa5483ac965572763&sc_lang=en. p. 84-92.

We propose that BAAQMD require Chevron to adjust their focus to the past 5 years, rather than including lists of every flaring-related action since the early 2000s. This will help paint a more accurate picture of the steps that Chevron has taken *recently* to minimize flaring. For example, in Section 3.0, *Past Reductions*, limiting the list to the five years leading up to and including the 2021-2022 FMP period reveals that Chevron only took 3 total actions to reduce flaring during this timeframe in June 2019, October 2020, and June 2022. As previously stated, only one of these actions occurred during the relevant FMP period. For additional clarity, BAAQMD should require Chevron to highlight the rows in each section that are *actually relevant* for the specific FMP period. For continuity of records, we propose that historical data (anything earlier than 5 years leading up to the FMP period) be included in an appendix rather than the main report. This should be extended to other sections of the report, for example Table 5-1, as discussed above, and Table 5-1a, which lists every flaring event since 2006. Both of these should be edited to focus on the most relevant, recent events, and save less relevant historical information for an appendix. This will have the added benefit of creating a report that is more easily digestible for members of the public who are concerned with flaring and plan to read the FMP, but may be discouraged by an ever-growing, 100+ page document.

3. Ensure Chevron does not use data analysis and representation methods that are misleading, as is the case in the 2022 FMP.

Chevron's data analysis strategies and graphical representations manipulate the data to mask the gravity of flaring – both in frequency and magnitude – at the Richmond Refinery. As discussed in our first point, Chevron has failed to adequately capture the frequency and magnitude of recent flaring events in the 2022 FMP, by creating graphs that focus on average daily vent gas flow and emissions. This is dishonest about the nature of flaring events, as flares occur (and are experienced by surrounding community members) as discrete events. Similarly, our second point has shown how the report's overemphasis on the past inflates the sense that Chevron has been working to reduce flaring *in recent years*. This is especially relevant for the graphs presented in the Executive Summary, which show the annual vent gas flow and daily emissions beginning back in 2004. Chevron's efforts to reduce flaring in the early-to-mid 2000s were welcome efforts then, but should not be the standards against which we are measuring Chevron's progress in 2024, or for the 2021-2022 FMP period. These years are simply too old to be relevant starting points for the 2022 FMP. Plus, from a purely graphical standpoint, the higher vent gas flow and emissions between 2004-7 skew the graph's scale to make the more recent years appear small when compared with those early years, and disguises the significant *increases* in vent gas flow and emissions through flaring between 2017-2021. These graphs should be updated to focus on the most recent five years, with the longer timeframe graphs included in appendices.

These small details in the FMP raise broader issues about the nature of data representation, and the backwards nature of Chevron producing this report. We recognize that 12-12 requires Chevron to produce the FMP, and BAAQMD to approve the plan, but we strongly encourage BAAQMD to consider whether Chevron's methods for data analysis and representation paints an accurate picture of their reduction efforts, and whether they are acting in

good faith in both their FMP reporting, and in the actions they claim to be taking. Beyond those mentioned here, BAAQMD should assess the FMP for other areas where data and reporting could be adjusted to more accurately reflect their flaring reduction efforts.

4. Ensure that safety and environmental health, not profit, drive Chevron's reductions and restricted use of flaring.

While it should go without saying that flaring should be restricted to use as a genuine safety measure, not a profit maximization strategy, Chevron's 2022 FMP report does not reflect this. This is particularly clear in Section 5.2.5, Evaluation of Options for Additional Capacity, in which Chevron explores possible alternatives to reduce flaring through increasing compressor capacity, storage capacity, or gas treatment capacity on site. Chevron concludes that they will not pursue any alternatives to build additional capacity because their calculated cost effectiveness exceeds the "\$20,000/ton NMHC emission reduction BAAQMD threshold for cost effectiveness referenced in the District's staff report for 1997 amendments to BAAQMD Rule 8-28."

First, we strongly encourage BAAQMD to revisit rule-making for this cost effectiveness threshold, as it has been over 25 years since Rule 8-28 was amended, and the climate and public health landscapes of the Bay Area, as well as inflation, have undoubtedly changed. This threshold is simply too low for our current context.

Second, CBE noticed that Table 5-3, which shows the Capital Cost Estimates for Increased Recovery Capacity has not been altered in *any* of Chevron's FMPs since 2006 – simply copy and pasted. This suggests that Chevron has not revisited these calculations in nearly 20 years, and thus, Chevron has not seriously considered adding additional capacity to reduce flaring. At a bare minimum, BAAQMD should require Chevron to redo these calculations. However, we also *strongly* encourage BAAQMD to complete an independent analysis that analyzes the feasibility and cost effectiveness of these additional capacity calculations, and checks Chevron's assumptions. We see the fact that Chevron has copy and pasted these calculations between FMPs for nearly 20 years as evidence that they have not been adequately exploring all options to reduce flaring, as well as manipulating data in order to support the status quo, which is their persistent flaring.⁴ We strongly encourage BAAQMD to assess whether Chevron's cost effectiveness assumptions are sound in the first place.

In fact, CBE questions Chevron's conclusion that the cost effectiveness calculations definitively exceed BAAQMD's existing cost effectiveness threshold. Chevron's calculations sum the cost of adding compressor capacity, storage capacity, *and* treatment capacity (i.e., all 3 capacities), but do not explore the cost effectiveness of adding one or two of these elements (e.g., just adding storage capacity). BAAQMD should require Chevron to recalculate cost effectiveness for each additional capacity element as a standalone investment. This is particularly critical regarding additional storage capacity, which is not currently a part of the Richmond Refinery's vent gas recovery system but would dramatically reduce flaring, improving air quality and

⁴ In the 2022 FMP, Chevron simply states that these calculations are in 2005 dollars. See "Annual Update of Flare Minimization Plan - Chevron Richmond Refinery 2022," p.105.

resident health.⁵ Adding storage capacity would also address a major limiting factor in reducing flaring at the refinery, which currently depends on a user (e.g., fired heater) with a need for the gas to reroute the gas away from flaring.

CBE acknowledges that Chevron emphasized feasibility and safety concerns when discussing additional storage on site. Chevron emphasizes how “there are always concerns about any plan calling for the storage of large volumes of flammable gas containing hydrogen sulfide and other sulfur compounds.”⁶ We certainly agree that the safety of workers and surrounding communities should be of utmost importance when considering Chevron’s oil refining operations, and flaring, however those flammable “gases containing hydrogen sulfide and other sulfur compounds” are the very same gases that the refinery currently flares. Given the persistence of flaring, and the continued negative impact on the air quality and health of Richmond residents, it is time for Chevron to explore bolder alternatives, even if they require greater financial investment, such as adding storage capacity.

5. Explore how to reduce flaring at the Hydrogen Plant, a significant source of flaring at the Chevron Refinery that is under-addressed in the FMP.

As the FMP makes abundantly clear, flaring has significantly increased at the Chevron Richmond refinery due to the construction of the Hydrogen Facility in 2018. The Hydrogen Plant was involved in 42% of the flaring incidents requiring causal analysis during the 2022 FMP period.⁷ The summary graphs in the Executive Summary also show consistently higher annual vent gas flow, and emissions of methane and NMHCs than in the flares with flare gas recovery system.⁸ This is in large part because no flare gas recovery system exists for the Hydrogen Plant, thus any efforts to reduce flaring at the hydrogen plant quickly reach limits that do not exist for portions of the plant where flare gas can be recovered and reincorporated into refinery operations. Quite notably, there is no analysis in the FMP on what a flare gas recovery system would entail for the hydrogen plant, but CBE firmly believes that there should be.

At a bare minimum, BAAQMD should require Chevron to explore the implementation of a flare gas recovery system to reduce flaring at the hydrogen facility. This analysis was never included in the 2022 FMP, or any FMP since the facility opened, and belongs in Section 5.2.5 – Evaluation of Options for Additional Capacity. BAAQMD should also consider whether the existing cost effectiveness threshold should apply to the hydrogen facility as well, developing a new or amended rule as needed. This could be included as part of the rule revisions discussed below.

6. Amend BAAQMD flaring rules and further tighten emissions standards

Despite the passage of Rule 12-12 nearly 20 years ago, flaring is persistent at the Chevron Richmond facility, and continues to have negative health and environmental impacts. This is in

⁵ “Annual Update of Flare Minimization Plan - Chevron Richmond Refinery 2022,” p. 101.

⁶ “Annual Update of Flare Minimization Plan - Chevron Richmond Refinery 2022,” p. 103.

⁷ Ten of 24 flaring incidents reported in Table 5-1a involved the Hydrogen Plant. See “Annual Update of Flare Minimization Plan - Chevron Richmond Refinery 2022,” p. 84-92.

⁸ See summary charts in “Annual Update of Flare Minimization Plan - Chevron Richmond Refinery 2022,” p. 2-3.

part because the rule leaves multiple key terms up to Chevron’s interpretation. For example, Chevron’s interpretation of how to “reduce flaring to the extent that is feasible without compromising safety and necessary refinery operations and practices” encourages their understanding of what reductions are “feasible” and what flaring is “necessary” for refinery operations.

However, we are encouraged that there has been recent enthusiasm within BAAQMD and among Richmond residents to revisit and revise BAAQMD’s flaring rules, including Rule 12-12. For example, the draft Path to Clean Air Community Emissions Reduction Plan, released in December 2023 commits BAAQMD to initiate a rule development effort to revise its flaring regulations, namely 12-11 and 12-12, by the end of 2024.⁹ In addition, the recent Rule 6-5 Settlement Agreement between BAAQMD and Chevron encourages the tightening of flaring regulations. CBE fully supports a revision of flaring rules to tighten emissions standards, and we welcome the improvements in monitoring and reporting that we suspect would come with these revisions.

7. Enhance compliance monitoring, even before flaring rules have been revised

BAAQMD should not wait for the revision of existing flaring rules to step up enhanced compliance monitoring and heavier fines when flaring does occur. We encourage BAAQMD to use the existing tools at their disposal – Notices of Violation, investigations, and fines – to increase Chevron’s accountability to the Air District and Richmond residents. Stronger enforcement and penalties imposed by the Air District would serve as a critical deterrent for preventable flaring, as Chevron would have to face consistent, and more serious repercussions for their flaring actions. This is particularly critical for monitoring Chevron’s patterns of faulty equipment (e.g., faulty valves, faulty fire alarm pull system) and faulty readings, both of which repeatedly appear in the list of flaring events requiring causal analysis. Enhanced compliance measures would contribute to reductions in both the frequency and magnitude of flaring events.

8. Make flaring and FMP data more publicly accessible on the BAAQMD website

CBE appreciates that BAAQMD has made Chevron, and the 4 other Bay Area refineries’ flaring data publicly [available on their website](#). This data has great potential to increase public awareness and understanding of flaring events, as well as Chevron’s accountability to the public. However, the data’s current form – broken down by month and by flare – makes it hard to understand and utilize. We encourage BAAQMD to include more accessible summary graphs for the public, similar to those we have suggested for the 2022 Chevron FMP. One summary graph could show the vent gas flow for each of the flares, with a different colored line for each flare. Another graph could show the total vent gas emissions when combining all flares. Additional charts could include the graphs suggested in Point 1. Flaring is a major and enduring concern for Richmond community members, who are eager to have more information on what actually occurs during flaring events, but may not have the time to download the monthly file for each

⁹ See Strategy 2.6 in the Fuel Refining Section in “Path to Clean Air Community Emissions Reduction Plan,” December 2023, https://www.baaqmd.gov/~/_media/files/ab617-community-health/richmond/richmond-ptca-cerp-plan/final-draft-plan_december2023_v2-pdf.pdf?rev=18f908c0da024baeadc8a23c7e84a08e, p. 97.

flare and consolidate the data to see patterns that emerge across the refinery. Better tying the FMP to publicly accessible data would help support public awareness on flaring, and overall accountability of Chevron to BAAQMD and the public.

In conclusion, we urge BAAQMD hold Chevron accountable to the greatest extent possible using Rule 12-12, requiring CBE's suggested updates to the FMP, while simultaneously tightening existing flaring rules and emissions standards, and improving emissions monitoring and reporting. Given the projected and state-driven decarbonization of California's economy, this is particularly critical as oil companies like Chevron begin to see refineries like the Richmond Refinery as stranded assets. This often results in lagging maintenance, greater safety issues and flaring, and it is critical that BAAQMD take proactive efforts to protect Richmond's air quality and the health of its residents. We greatly appreciate you taking the time to read and review this comment letter, and welcome any follow-up questions or comments you may have.

Sincerely,

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