



Q&A

a conversation with

Lorraine Reyes is a general manager of Products and Technology at Chevron Richmond. She has worked for Chevron for ten years.

Q What are flares and how do they work?

The refinery maintains a comprehensive network of safety systems to keep our plants running safely and reliably during a range of operating conditions. One of the most visible components of those safety systems is our eight flares. Flares are essential pieces of safety equipment used to burn any excess gases that may build up

in pipes, vessels and towers within the refinery, so they are not released directly into the atmosphere. Flares work like the gas stove in our homes. They are equipped with a pilot light or an ignitor at the top. If the system sends gases to a flare it will ignite, just like your stove does when you turn on the gas. Routing gases through the flare prevents having to vent them directly into the atmosphere. Therefore, flares are safer for the environment and public health.

Q Why does the refinery flare?

Occasionally during the refining process, we may experience conditions that could trigger flaring activity, such as a loss of power, changes in pressure or temperature, loss of steam, equipment failure or excessive vibration. When this occurs, our safety systems are activated, and our operations team takes immediate action to assess and address the issue.

Our number one goal is to keep the refinery running safely and reliably, so we can protect our workforce and the community. We all take this very seriously and do everything we can to avoid flaring. If we do have to flare, our teams work hard to reduce or stop it as soon as possible.

Q How does the refinery prevent flaring during certain operating conditions?

The refinery has invested hundreds of millions of dollars over 15 years to deploy new technologies that have allowed us to significantly reduce flaring by recovering gases that would otherwise be flared and recycling them back through our processing plants.

The refinery uses a flare gas recovery system that helps capture flare gases and puts them through a compressor system. Depending upon the pressure and temperature, flare gases can either be recovered as gas or liquid product. Gas collected is used as fuel for the refinery. Recovered liquid product is recycled and reused during the refining process.

Q What happens when the refinery flares?

Sometimes it is not possible to fully recover all the excess gas in a safe manner. In these instances, the flare gas recovery system is designed to route any excess gas through a flare stack. Most of the excess gas is fully combusted before it is released into the atmosphere. The result is a bright flame that, at times, is visible to the community.

During certain operating conditions, the gas may not be perfectly combusted, which can result in some smoke. You may also see steam coming from the flares as steam helps increase combustion efficiency and reduce the potential for smoke. The flare stacks are very tall (approximately 200 feet above ground level). This design feature helps to ensure that materials are released into the upper atmosphere and dissipate over the refinery, minimizing or reducing the potential impact to surrounding neighborhoods.

Q Can the refinery flare whenever it wants to?

No, all flaring activity is regulated by BAAQMD and the EPA. We are required to submit an annual Flare Minimization Plan (FMP), which outlines the systems in place to keep flaring to a minimum. Flaring is required to be consistent with an approved FMP. We also submit monthly flaring data of volume and emissions flared, as well as reports related to the cause of BAAQMD reportable flaring events. These reports are available online at baaqmd.gov.

Q Why was there so much flaring in 2019 and 2020?

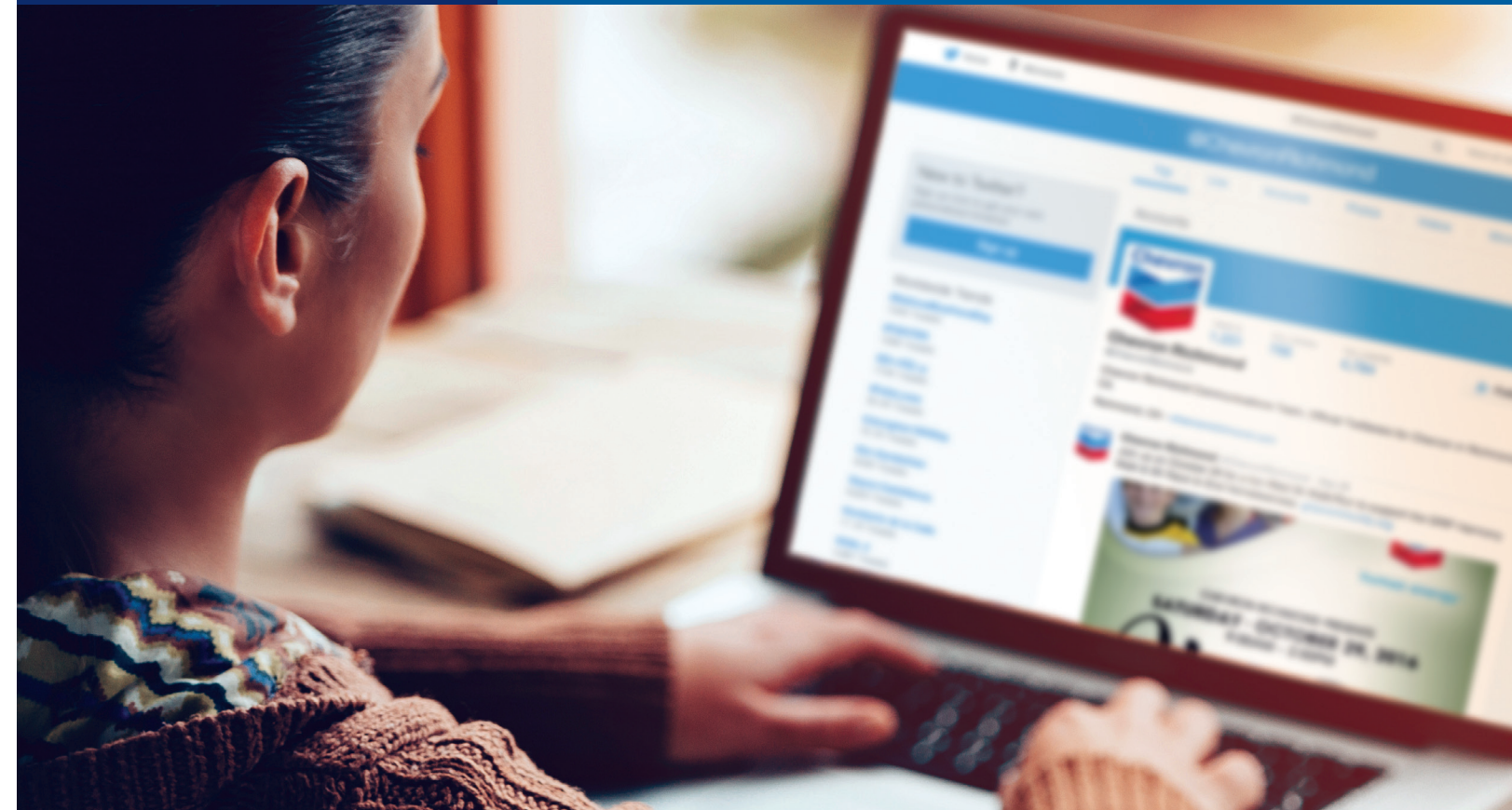
The refinery has a strong history of reducing flaring activity over the last 10-plus years. We experienced increased flaring activity in 2019 which was primarily related to startup activities at the Modernization Project's new, more efficient, hydrogen processing unit. This project is now complete. We also had some flaring at the end of 2020 and beginning of 2021. This was mostly related to startup and shutdown activities as part of routine maintenance improvements.

inside

- Fast Facts About Flaring
- Air Monitoring Map

"We want our neighbors to have the same confidence in our safety systems and the steps we take to protect the community as we do. We are committed to having an ongoing dialogue with you and welcome your feedback. Please use the channels below to reach out to us."

—Justin Fehr, General Manger, Operations, Chevron Richmond



community resources

alerts: Register for CWS alerts online at cwsalerts.com

questions: For questions or comments call 510-242-2000 or email us at richmondrefineryinfo@chevron.com

social: Follow on social media: @ChevronRichmond Facebook and Twitter, @RFDCOnline Twitter

monitoring: Real-Time Air Quality: richmondairmonitoring.org

report: To report noise or odor issues, call 510-242-2127

air monitoring sources

www.richmondairmonitoring.org (funded by Chevron)

www.baaqmd.gov (search air quality)

www.transparentrichmond.org (select community air monitoring)

www.purpleair.com

www.ramboll-shair.com

www.breezometer.com

www.airnow.gov

Use this QR code to find these resources online.



a community guide to understanding refinery flares

We recognize that the community is concerned with flaring and the noise and visual effects it may create. We have created this guide, with information from the Bay Area Air Quality Management District (BAAQMD), to help residents better understand what flaring is, what we do to prevent it and how we minimize it.

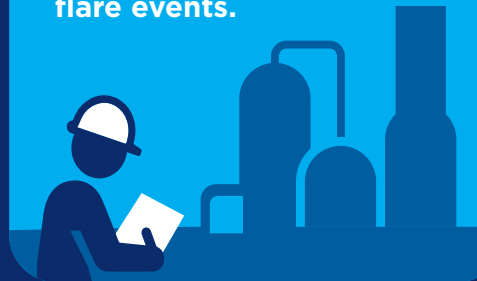
Source: Bay Area Air Quality Management District and Chevron

what are flares?

Refinery flares are safety devices that burn pollutants to prevent them from being released into the atmosphere.

how am I protected?

Air District Rule 12, Regulation 12 limits the frequency and magnitude of flaring events. Rule 12, Regulation 11 requires monitoring to minimize flare events.



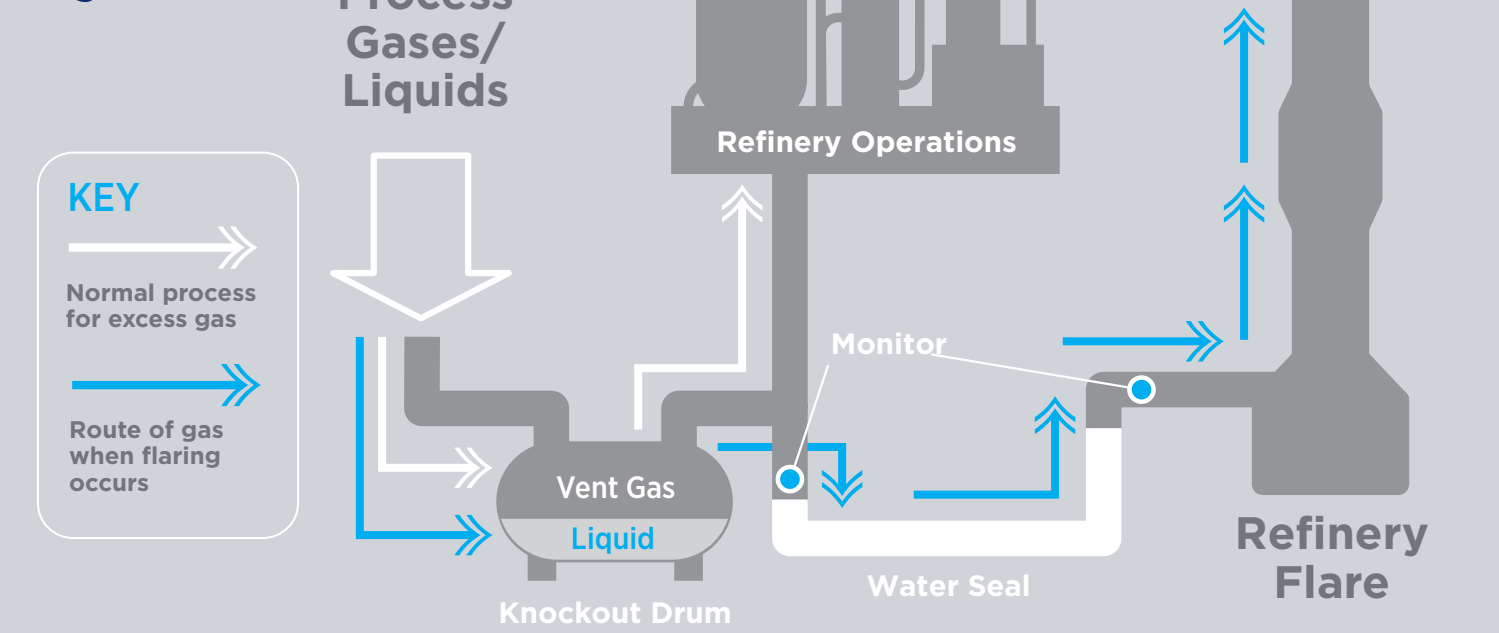
BAAQMD RULES REQUIRE REFINERIES TO:

- Immediately notify the Air District
- Monitor the volume and composition of gases burned
- Calculate the emissions based on collected data
- Continuously monitor and record the flares
- Determine cause and prevent from recurring
- Submit data monthly to the Air District

why do they occur?

- Flaring occurs during startup and shut down of units or during upsets or equipment malfunctions.

typical flare system



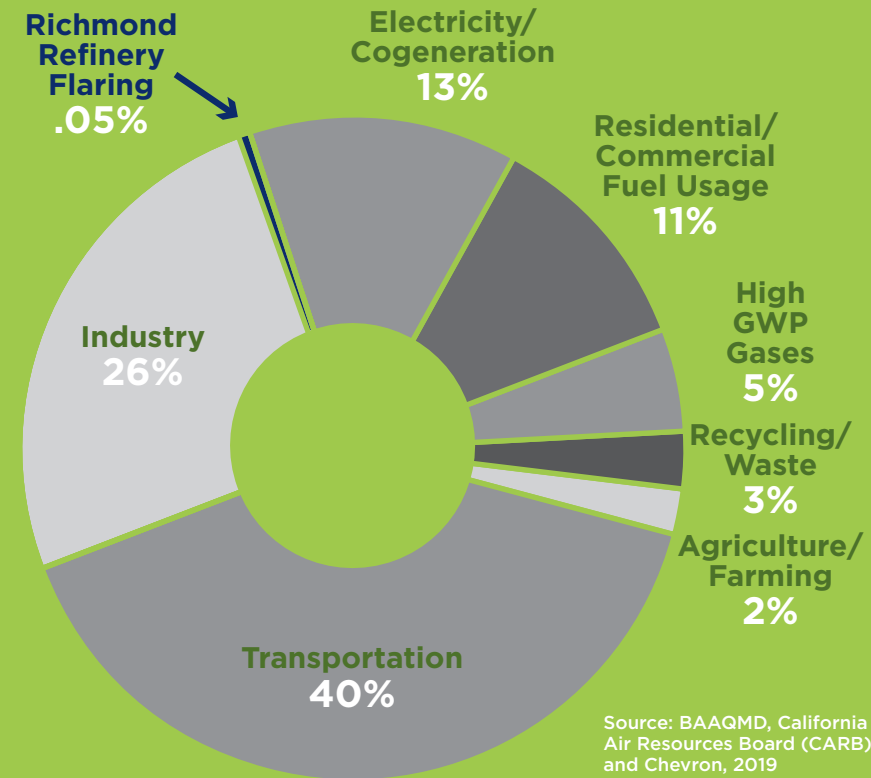
flares: part of our safety system

The Richmond Refinery takes our commitment to environmental protection very seriously and we work hard to prevent flaring. Our flares are a visible part of our comprehensive network of safety systems designed to keep equipment running safely and reliably

did you know?

The typical flare stack is about 200 feet high. This ensures vapors are well above street levels and helps to protect air quality.

bay area sources of greenhouse gas emissions



measuring air quality in Richmond

Air monitoring is one of the tools used to understand neighborhood air emissions and increase transparency. The Richmond Refinery funds an independently operated community air monitoring program. In addition, there are a number of other public and private sources of air monitoring data that the community is able to access.

See back panel for list of air monitoring websites.

- refinery fenceline system
- community station
- BAAQMD station
- refinery ground level monitor



fast fact

Since 2013, there has not been a CWS Level 2 or 3 incident resulting from flaring at the Richmond Refinery.

community warning system

Contra Costa County maintains a Community Warning System (CWS) to keep area residents informed during various community incidents that have the potential to impact residents.

LEVEL 0

Offsite impacts not expected and not expected to cause public concern.

NOTIFICATION

No notification sent to public.

ACTION

No community action required.

LEVEL 1

Odor or audible impact; flaring lasting longer than 20 minutes; or other non-flaring visual impact.

Awareness message sent to people who have opted in by texting CCHEALTH to 21423.

No community action required.

LEVEL 2

Has or expected to go offsite; may impact health of sensitive populations.

Public health advisory sent to landlines in affected areas. To opt-in your cellphone sign-up at cwsalerts.com.

The county will provide guidance on action to take.

LEVEL 3

Has or expected to go offsite; may impact health of general public.

Public protective actions issued to landlines in affected areas. CWS sirens activated. To opt-in your cellphone sign-up at cwsalerts.com.

The county will provide guidance on action to take.



stay informed!

Sign up for our digital newsletter to stay updated on the latest news from us.



did you know?

BAAQMD's flare regulations are some of the first and most stringent flare monitoring rules in the nation. The goal is to minimize the frequency and magnitude of flaring. Since adoption of the regulations, flaring events at Bay Area refineries, including Richmond, have been significantly reduced.