State of California
AIR RESOURCES BOARD

Executive Order G-25-057

CARB approval of Chevron's Innovative Concepts for compliance with the Control Measure for Ocean-Going Vessels At Berth

WHEREAS August 27, 2020, the California Air Resource Board (CARB) adopted the Control Measure for Ocean-Going Vessels (OGV) At Berth, California Code of Regulations, sections 93130 - 93130.22 (2020 At Berth Regulation), which establishes requirements for ocean-going vessels at berth in a California port to reduce oxides of nitrogen (NOx), diesel particulate matter (PM), and reactive organic gases (ROG) emissions from auxiliary engines;

WHEREAS section 93130.17 of the 2020 At Berth Regulation allows regulated entities to incorporate an Innovative Concept (IC) to reduce emissions from sources in and around the regulated port or marine terminal at a level equal or greater to what would be achieved by reducing emissions from vessels;

WHEREAS an IC must meet the general requirements specified in section 93130.17(a);

WHEREAS applications for an IC must contain the information specified in section 93130.17(b)(1);

WHEREAS Chevron Products Company (Chevron) submitted an Innovative Concept Application (IC Application) to CARB on December 1, 2021, which included multiple separate and distinct concepts for consideration;

WHEREAS the Chevron IC Application consists of 14 projects referred to in the application as project #1 through project #14, and denoted as sub-concepts IC-1 through IC-14 in this Executive Order;

WHEREAS the strategy of Innovative Concept 1 (IC-1) is to reduce locomotive emissions by replacing one or more locomotives used at Chevron Richmond with a Lower Emissions and Fuel (LEAF) locomotive;

WHEREAS the strategy of IC-6 is to optimize Chevron's F-500 Heaters at the Taylor Katalytic de Nitrification (TKN) plant with a more efficient finned tubes heat exchanger system on each of the three heaters to reduce emissions across the operating range of furnace firing rates;

WHEREAS IC-4 was withdrawn by Chevron on June 10, 2024;

WHEREAS IC-8 and IC-9 were withdrawn by Chevron on October 14, 2024;

WHEREAS this Executive Order does not constitute an air pollution or land use permit. All ICs must fully comply with applicable laws, ordinances, regulations and standards;

NOW, THEREFORE, IT IS ORDERED that Chevron's IC Application be approved for the following sub-concepts for use in accruing emission reductions to offset vessel emissions to demonstrate compliance with the 2020 At Berth Regulation during the first compliance period between January 1, 2027, through December 31, 2031;

BE IT FURTHER ORDERED that Chevron shall comply with the following requirements relating to sub-concept IC-1:

Sub-Concept IC-1: Reduce locomotive emissions by replacing a locomotive with a LEAF locomotive.

Baseline Information for IC-1

The first LEAF locomotive powered by a Cummins QSX-15 Tier 4 engine replacing the General Motors Electro-Motive Division (EMD) 12-645E Pre-Tier 0 locomotive engine for IC-1 was brought into service on April 7, 2022, with the purpose of reducing emissions under IC-1;

The locomotive in IC-1 is lower-emitting than the replacement locomotive by the following delta as indicated in Table IC-1 (LEAF) Locomotive Emission Factors;

Table IC-1 Locomotive Emission Factors

	NOx (g/BHP-hr)	PM2.5 (g/BHP-hr)	ROG (g/BHP-hr)
Pre-Tier 0 locomotive	17.4	0.405	1.22
LEAF Locomotive	1.3	0.0276	0.169
Emissions Delta	16.1	0.377	1.05

Operational Requirements for IC-1

The LEAF locomotive used for IC-1 shall not exceed the following emission rates of 1.3 g/BHP-hr for NOx, 0.0276 g/BHP-hr for PM2.5 and 0.169 g/BHP-hr for ROG;

Monitoring and Reporting Requirements for IC-1

Chevron shall maintain records of operation for any locomotive associated with IC-1, including the hours of operation and fuel usage of the new lower emitting locomotive(s) while under the scope of IC-1;

Emissions reductions associated with the use of the LEAF locomotive shall be calculated using the emissions delta for each pollutant multiplied by the calculated brake horsepower hours as follows:

Emissions Reductions per pollutant =
(gal fuel consumed) * (15.2 BHP-hr/gal fuel) * (Emissions Delta in g/BHP-hr);

For emission reductions between April 7, 2022, and January 31, 2024, Chevron will estimate the gallons of fuel consumed by multiplying the hours of operation reported by the fuel consumption rate achieved from February 1, 2024, to December 31, 2024, and after February 1, 2024, Chevron will use the actual gallons of fuel consumed;

Chevon shall report to CARB annually, by February 1 for the previous year, for IC-1 based on the requirements in section 93130.17(d) using the attached "IC-1 Reporting Template", which includes monthly fuel usage and monthly hours of operation of the LEAF locomotive;

BE IT FURTHER ORDERED that Chevron shall comply with the following requirements relating to sub-concept IC-6:

Sub-Concept IC-6: TKN Heater Optimization

Baseline Information for IC-6

The F-500 Heaters at the TKN plant established baseline feed and firing rates averaged from January 1, 2021, to December 31, 2023;

The F-500 Heaters at the TKN plant operated within Title V permit limits for fuel gas firing duty and feed throughput during the time period the baseline was established;

The upgraded heaters began operations to reduce emissions on June 26, 2024;

The optimization of the F-500 Heaters at the TKN plant improves heater efficiency, thereby reducing fuel consumption by approximately 30% over the operational range of furnace firing rates, and resulting in fewer emissions compared to pre-optimization baseline levels;

Monitoring and Reporting Requirements for IC-6

Chevon shall report to CARB annually, by February 1 for the previous year, for IC-6 based on the requirements in section 93130.17(d) using the attached "IC-6 Reporting Template", with annualized NOx, PM2.5, and ROG emission reductions, and the attached "IC-6 Confidential Reporting Template" that monitors each hour of usage;

By February 1, 2027, Chevron shall also submit the annual reports of the TKN plant usage between June 26, 2024, and December 31, 2025;

Emission reductions per pollutant associated with the improved efficiency of the F-500 Heaters shall be calculated as follows:

Emissions reductions per pollutant (mTons/year) = (Baseline annual emissions) * (Feed rate ratio) – (Current year emissions); where

Baseline annual emissions (mTons/year) = Emission factor (lb/MMbtu) * Baseline firing rate (MMbtu/year) * (0.000453592 (mTons/lb); and

Current year emissions (mTons/year) = Emission factor (lb/MMbtu) * Current year firing rate (MMbtu/year) * (0.000453592 (mTons/lb); and

"Feed rate ratio" means the ratio of the current year feed rate (barrels) to the average annual feed rate (barrels) during the baseline reporting years from 2021 to 2023;

"Emission factor" means the annual emissions rates (lb/MMbtu) per pollutant from the F-500 Heaters in the current year, as measured by continuous emissions monitoring systems (CEMS) for NOx and annual source testing for ROG and PM2.5;

"Baseline firing rate" means the average annual firing rate (MMbtu) of the F-500 heater during the baseline reporting years from 2021 to 2023;

"Current year firing rate" means the annual firing rate (MMbtu) of the F-500 heater during the current reporting year;

The TKN plant will operate pursuant to the applicable limits and conditions in the Refinery Title V permit, including limits for fuel gas firing duty and feed throughput.

Chevron shall operate CEMS on the F-500 heater, and report the CEMS data and annual emissions factor for NOx based on CEMS data to CARB in the IC-6 Confidential Reporting Template;

Chevron shall conduct annual PM2.5 and ROG source testing on the F-500 Heaters to calculate annual emissions rates and report these rates in the IC-6 Confidential Reporting Template;

Source testing shall be conducted each year, and shall not be conducted within three months of the previous year's source tests;

Chevron shall include documentation from any applicable Relative Accuracy Audits (RAA), and documentation from PM2.5 and ROG source testing conducted in the previous year for F-500 in their annual reporting;

Chevron shall include a copy to CARB when the Source Emissions for F 510, F 520, and F 530 are reported to the Bay Area Air District;

BE IT FURTHER ORDERED that Chevron shall comply with the following requirements relating to this executive order and all sub-concepts:

General IC Reporting and Recordkeeping Requirements

A vessel operator or terminal operator using an IC at Chevron Richmond to comply with the 2020 At Berth Regulation will report the use of the IC in the vessel compliance checklist from Section 93130.7(e)(4)(U) or terminal compliance checklist from Section 93130.9(d)(5)(P) due to CARB within 30 days of a vessel's departure;

Chevron will determine the amount of emissions from all vessel visits at Chevron Richmond that used an IC toward compliance following Section 93130.17(d)(1) using the attached "IC Vessel Visit Reporting Template";

Chevron will determine and document the amount of emissions reductions achieved with the IC in excess of the emissions from vessel visits that used an IC toward compliance following Section 93130.17(d)(2);

General IC Requirements

Emission reductions achieved under an IC before the first compliance period beginning on January 1, 2027, can be used to offset emissions of vessels at Chevron Richmond complying with this IC for the first compliance period between January 1, 2027, and January 1, 2032, as specified in Section 93130.17(a)(11), or until the date the emissions reductions are no longer early or in excess of any other state, federal or international rule, regulation, statute, or any other legal requirement (including any requirement under a Memorandum of Understanding with a government entity);

Emission reductions achieved under an IC after January 1, 2027, must be used for compliance in the calendar year the reduction was generated, or the following calendar year as specified in Section 93130.17(a)(10);

The IC is valid for the first compliance period until January 1, 2032, unless extended by the Executive Officer for another compliance period of up to five years per section 93130.17(a)(7);

The reductions achieved by an IC must be at Chevron Richmond's facility, adjacent communities to Chevron Richmond, or within three nautical miles of Chevron Richmond;

Vessel visits made under an IC are not counted toward a fleet's Vessel Incident Events (VIE) or terminal operator's terminal incident events (TIE) in section 93130.11, and are ineligible for using the remediation fund provisions in section 93130.15;

No changes are permitted to any sub-concept of this IC without advanced approval from CARB;

The sub-concepts in this IC are distinct and severable, and as such, decisions to revoke or modify approval for a specific sub-concept may not necessarily result in revocation of the entire IC or other sub-concepts within the IC;

The Executive Officer may revoke this IC, or a sub-concept, for any of the reasons specified in section93130.17(f);

This Executive Order does not relieve Chevron from complying with all other applicable regulations.

Executive Order EO G-23-295 is hereby superseded and is of no further force and effect.

Executed at Sacramento, California, this 20th day of January, 2026

Bonnie Soriano, Branch Chief
Freight Activity Branch
Transportation and Toxics Division

Attachment 1: IC-1 Reporting Template

Attachment 2: IC Vessel Visit Reporting Template

Attachment 3: IC-6 Reporting Template

Attachment 4: IC-6 Confidential Reporting Template