CALIFORNIA
AIR RESOURCES BOARD

2018 ANNUAL ENFORCEMENT REPORT

June 2019

California Air Resources Board
http://www.arb.ca.gov

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Table of Contents

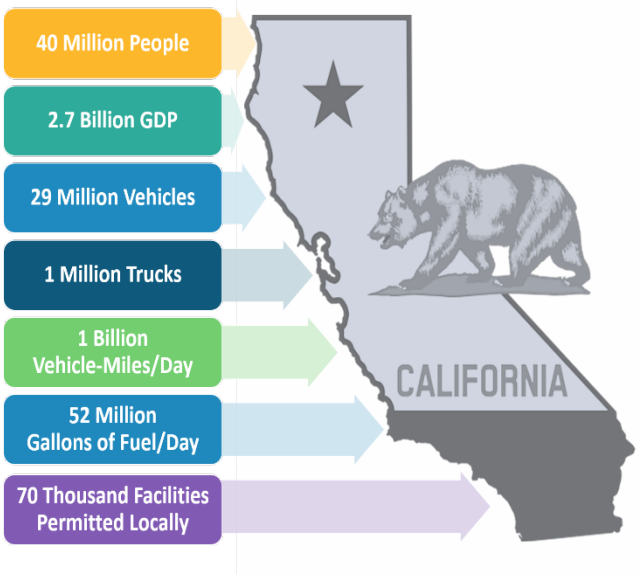
Frequently Used Acronyms

Acronym	Definition
AB 617	Assembly Bill 617
AECD	auxiliary emission control device
AIM	Asthma Impact Model
APCD	Air Pollution Control District
ARBER	Air Resources Board's Equipment Registration Database
ATCM	air toxic control measure
CalEPA	California Environmental Protection Agency
CAP	Compliance Assistance Program
CAPCOA	California Air Pollution Control Officers Association
CAPP	Community Air Protection Program
CARB	California Air Resources Board
CARBOB	California Reformulated Gasoline Blendstock for Oxygenate Blending
CA DMV	California Department of Motor Vehicles
CCAC	Central California Asthma Collaborative
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CI	Carbon intensity
CTVRP	Cargo Tank Vapor Recovery Program
DEEP	Diesel Education and Emission Reductions Project
DEF	diesel emission fluid
DMS	PERP Data Management System
DPF	diesel particulate filter
DTSC	Department of Toxic Substances Control
EDVR	Excluded Diesel Vehicle Reporting
EGR	exhaust gas recirculation
EJ	Environmental Justice
EJ Task Force	CalEPA Environmental Justice Task Force
ERC	Emission reduction credit
FCA	Fiat Chrysler
FTP	Federal Test Procedure
GAHEJ	Green Action for Health and Environmental Justice
GHG	greenhouse gas
GWP	Global Warming Potential
HDIUT	Heavy-Duty In-Use Testing
HDVIP	Heavy-duty Vehicle Inspection Program
ICAPCD	Imperial County Air Pollution Control District
ISD	Industrial Strategies Division (of CARB)
LA	Los Angeles, California

Acronym	Definition
LB	Long Beach, California
LCFS	Low carbon fuel standard
LLC	low load cycle
LMR	Landfill Methane Regulation
LRT	low carbon fuel standard reporting tool
MOU	Memoranda of understanding
MSC	Mediterranean Shipping Company
MRR	Mandatory Reporting of Greenhouse Gas Emissions
MY	model year
NOV	Notice of Violation
NO_x	oxides of nitrogen
NTE	Not-to-Exceed
PEAQS	Portable Emissions Acquisition System
PEMS	portable emissions measurement system
PERP	Portable Equipment Registration Program
PIO	Public Information Office (of CARB)
PM	particulate matter
PSIP	periodic smoke inspection program
RD	Research Division (of CARB)
RMC-SET	Supplemental Emission Test Ramped Modal Cycle
RMP	Refrigerant Management Program
SCAQMD	South Coast Air Quality Management District
SDAPCD	San Diego Air Pollution Control District
STEP	Streamlined Truck Enforcement Process
SCR	selective catalytic reduction (system)
SEP	supplemental environmental project
SJVAPCD	San Joaquin Valley Air Pollution Control District
SORE	small off-road engine
SSEB	Stationary Source Enforcement Branch (of CARB)
SWCV	Solid Waste Collection Vehicle
TAC	toxic air contaminants
TBSP	Truck and Bus Surveillance Program
TRU	transport refrigeration unit
US DOJ	U.S. Department of Justice
US DOT	U.S Department of Transportation
US EPA	U.S. Environmental Protection Agency
VDECS	Verified diesel emission control strategy
VOC	volatile organic compound

Executive Summary

A diverse and dynamic population of nearly 40 million people thrives in California. California feeds, entertains, connects, and enhances the productivity of people worldwide. Our vibrant economy focused on agriculture, trade, finance, aerospace, technology, and entertainment is the fifth largest in the world. Years ago, many parts of California suffered from the worst air quality in the nation and perhaps the world. But the policies we have put in place have helped to dramatically reduce air pollution across California. Californians prove, every day, that a healthy environment and strong economy are linked, driven by our desire and our actions to achieve both simultaneously.



More than 50 years ago, the California legislature established the California Air Resources Board (CARB) to protect public health from the burden of air pollution. To date, CARB has adopted and implemented more than 50 different programs designed to reduce emissions. These regulations, coupled with effective implementation including enforcement efforts, have dramatically reduced emissions and improved air quality, but we have more to do. The gains are not evenly shared; today communities located in close proximity to air emissions sources continue to experience adverse health impacts caused by elevated exposure to air pollution. Several key areas, including the South Coast and San Joaquin Valley air basins, have not yet attained health-based federal air quality standards.

Our regulations are put in place to protect public health and are only successful when industry meets regulatory requirements. CARB staff provides compliance assistance through education, training, and incentives to help industry and small fleets comply; however, once a regulation takes effect, it is a legal requirement that must be met. The vast majority of companies play by the rules and comply with the regulations. However, when a company fails to meet requirements, they can profit at the expense of their peers and undermine the effectiveness of the regulation. This underscores why CARB's enforcement program is a critically important part of our efforts to ensure all Californians have healthy air to breathe. Enforcement efforts ensure a level playing field in regulated industries so that companies found in violation do not profit from non-compliance, and deter future violations. Our goal is to ensure compliance with our clean air regulations.

In 2018, CARB's enforcement programs continued to innovate and evolve, which has resulted in an increase in enforcement efforts and compliance rates.

- We continued our efforts to pursue companies violating certification requirements, closing a major case against Fiat Chrysler with a settlement agreement of $78.4 million in California, for installing illegal software and failing to disclose this software during the certification process;
- We increased productivity in diesel truck enforcement, completing enforcement against 13,229 of the longest-standing non-compliant trucks;
- We assessed more than $2.5 million dollars in penalties for violations of California's regulations governing fuel composition; and
- We expanded the scope of our Supplemental Environmental Projects (SEP) program designed to benefit disadvantaged communities.

CARB's enforcement programs cover the vehicles we drive, the diesel engines that power our economy, consumer products that we purchase, and greenhouse gas (GHG) emissions from our industries and activities. Overall in 2018, routine CARB enforcement programs assessed $13,296,191 in penalties from 93 routine settlements, 1,539 Streamlined Truck Enforcement Process (STEP) settlements, and 1,727 citations. This report highlights successes and challenges in CARB's enforcement programs both with an eye to the past on our accomplishments, and an eye to the future in enforcing new programs. We discuss the state of compliance in several important programs, outline our efforts to help achieve environmental justice, and describe performance in each of our programs.

Introduction

The goal of CARB enforcement programs is to achieve comprehensive compliance in every regulation the Board adopts. Through enforcement, we work to bring responsible parties into compliance and in doing so achieve a level playing field across industry so that no company can benefit from non-compliance at the expense of another; and to deter industry from future violations. We take compliance seriously because the success of our programs, and public health protection, depends on it.

At the same time, we apply enforcement programs professionally in accordance with our enforcement policy which we updated in 2017. We use data and inspections to identify potential non-compliance, and then investigate each case. Once a violation is identified, we notify the responsible party and evaluate what happened. We work with the party to achieve compliance, and measure the relevant facts and circumstances of each case, relative to eight factors set in law and described in our enforcement policy, to determine an appropriate penalty. The case is settled when the responsible party has achieved compliance and paid an appropriate penalty. If the case cannot be settled, we work with CARB legal staff to refer the case to California's Attorney General for litigation.

Enforcement is a team effort across the agency. In many cases, enforcement staff work side by side with the program staff, who implement regulations, to identify violations. Enforcement staff works closely with CARB's enforcement attorneys to help negotiate and settle cases. This report covers all of our collective efforts.

We begin the report with key 2018 highlights including the Fiat Chrysler defeat device case, truck and bus enforcement, fuels enforcement programs, and our SEP program. Next, we provide our compliance assessment of several important programs. Then we discuss our efforts in working towards environmental justice, and close with a series of program updates.

Enforcement Highlights

Our enforcement efforts cover more than 50 programs focused on enforcing product certification, diesel fleet program requirements, fuels regulations, and GHG regulations. In addition, staff issues equipment registrations, provides training, addresses complaints, and implements a SEP program. In 2018, CARB staff:

- Reached a landmark agreement to resolve the Fiat Chrysler defeat device case, assessing $45,800,000 dollars in penalties, and $19,035,000 to mitigate excess oxides of nitrogen (NO_x) emissions from more than 13,000 vehicles in California. More importantly, the company will recall and repair these vehicles to meet certification standards.
- Performed 18,727 inspections on diesel vehicles, and 9,584 inspections on ships, cargo handling equipment, automobiles, consumer products, fuels, and equipment. 59% of these inspections were conducted in or adjacent to disadvantaged communities.
- Assessed $13,296,191 in penalties from 93 routine settlements, 1,539 Truck and Bus Regulation STEP settlements, and 1,727 citations for routine enforcement.
- Provided training to 4,854 students.
- Addressed 11,238 complaints.
- Granted 11,086 portable equipment registrations.
- Issued 6,058 cargo tank certifications.
- Provided $2,178,674 in penalty funds from violators to fund SEPs

Certification Enforcement Programs

Staff enforces CARB regulatory requirements that specify characteristics products must have (e.g., engines, aftermarket parts that potentially impact an engine's emissions), and requirements products must meet, before they can be legally offered for sale or sold in California. These requirements are commonly referred to as certification requirements, since the manufacturer is certifying the parts meet requirements before bringing the product to market. Staff identifies violations when a product does not meet a regulatory requirement, or is not in all material respects the same as represented in a CARB-approved certification application.

Vehicle and Engine Enforcement

- Fiat Chrysler Case Settlement

One of the positive outcomes of the Volkswagen defeat device case has been the development of special test cycles, analysis techniques, and the formation of a team of expert staff throughout CARB. This team includes expertise from certification, on-board diagnostics, in-use compliance, inventory assessment, laboratory testing, Portable Emissions Measurement System (PEMS) testing, enforcement, and legal. This team of CARB experts works jointly with the United States Environmental Protection Agency (US EPA) and has continued to screen the product lines of other diesel manufacturers for undisclosed Auxiliary Emissions Control Devices (AECD) and defeat device strategies. Because of these efforts, staff reached another settlement involving alleged defeat device software, this time with Fiat Chrysler (FCA) -valued at more than $500 million nationwide. The settlement covers 13,325 California model year (MY) 2014 – 2016 3.0L diesel Dodge Ram 1500 trucks and Jeep Grand Cherokees and 103,828 vehicles nationwide. The California settlement portion of $78.4 million includes $45.8 million in penalties, $19.035 million in mitigation, and a $13.5 million payment to the California Attorney General's Office for violations of the Unfair Competition Law, other statutes, and costs. The mitigation payment completely offsets all of the excess NO_x emissions by providing money to the Air Pollution Control Fund, which can be directed by the Legislature for low NO_x projects and NO_x reduction programs statewide. In addition to the penalties and mitigation, FCA will also be recalling all of the affected vehicles to apply a new emissions control calibration that will bring all of the vehicles to a compliant configuration.

During the MY 2017 certification process for FCA 3.0L diesel Ram trucks and Jeep Cherokees, staff used enhanced screening and test procedures to uncover suspicious emission control system behavior. During standardized certification tests, the vehicles met the certification standards. However, under special test cycles, staff observed very high NO_x emissions and modulation or shut off of major emission control systems. This same type of analysis was also applied to the earlier MY 2014-2016 3.0L diesel Ram trucks and Jeep Cherokees, and staff found a similar pattern of excess emissions outside of the certification tests. None of this emission control system behavior was explained by the approved AECDs provided to the agencies. Under certain conditions, AECDs are allowed by the agencies to protect the engine by modulating emissions controls for brief periods at start-up or under limited conditions. This unexplained high emissions behavior prompted the agencies to hold off on approving the MY 2017 certification, and begin an in-depth investigation into the emissions calibration of the MY 2017 and MY 2014-2016 software. A thorough series of PEMS testing by both agencies confirmed high on-road emissions.

Confirming high emissions with PEMS does not explain how any defeat device strategy operates. Uncovering any undisclosed AECDs or defeat strategies is the real challenging part of any investigation, often requiring extensive testing and analysis. Through many months of testing and analysis by both agencies, staff identified at least eight undisclosed AECDs that could have a direct impact, in part or in series, on NO_x

PEMS testing for excess on road emissions

emissions outside of the normal certification tests. One that was common to the MY 2017 and MY 2014-2016 software was a modeled engine temperature parameter called T-eng. The T-eng function acted as a temperature based de facto timer that recognized the duration of the official certification tests and then reduced NO_x control. The result was high NO_x emissions under normal use conditions with no justification for engine protection. During January 2017, US EPA and CARB staff issued a Notice of Violation (NOV), and ultimately both the US Department of Justice (US DOJ) and California Office of the Attorney General filed complaints in federal court. Although FCA never provided a reason for these undisclosed AECDs, some of the reasons may include improved durability due to less exhaust gas recirculation (EGR) use, increased fuel economy, and diesel emission fluid (DEF) conservation by reducing DEF dosing to the selective catalytic reduction (SCR) system – all at the cost of higher NO_x emissions.

Both CARB and US EPA staff initiated discussions with FCA to try to reach a resolution to these violations prior to litigation. Initial discussions with FCA were focused on removing the T-eng function and other defeat strategies from the MY 2017 software prior to certification. A version of this software was proposed by FCA as a potential fix for the MY 2014 – 2016 vehicles. Working jointly with the agencies, FCA carried out a demonstration test protocol to validate the application of this software back to the MY 2014 -2016 vehicles. Over the course of about 24 months, CARB and US EPA engaged in technical discussions and settlement negotiations. Ultimately, all the technical work and negotiations culminated in a consent decree outlining the terms of the settlement. The terms include a total payment of $500 million nationally, and a nationwide recall to re-flash the software in all MY 2014 -2016 3.0L diesel Dodge Ram 1500 trucks and Jeep Grand Cherokees. FCA is required to capture and re-flash at least 85 percent of the affected vehicles, and they will be providing a broad extended warranty on critical emissions control components. FCA will also improve their corporate compliance processes by conducting annual third party audits of internal FCA product development for three years, and FCA will establish a corporate ethics hotline and training programs for employees on AECDs and defeat devices.

Aftermarket Parts

For the past decade, CARB enforcement staff has assessed fines against aftermarket part manufacturers, wholesalers, and retailers that violate California's anti-tampering laws. Although we have made progress getting the larger retailers and distributors into compliance, this industry is continuously expanding, and the number of smaller violators continues to be a problem. This year CARB had several major settlements. Two of those settlements involved retailers with an online presence – Pep Boys and AutoAnything Incorporated.

- Pep Boys of California

Pep Boys sold, through its website and in store, aftermarket parts that did not have a CARB Executive Order. The parts, such as catalytic converters and intake kits, altered or modified the original design or performance of the motor vehicle pollution control device or system. To settle the case Pep Boys paid a penalty of $356,000 or $599 per violation.

- AZAA Investments Inc. of California

AZAA Investments Inc. (AZAA), formerly known as AutoAnything Inc. also settled with CARB for violations of aftermarket parts regulations. CARB attempted to settle the case in-house, but negotiations were not effective and the case was eventually referred to the California Office of the Attorney General. A stipulated settlement was entered with the court in the amount of $1,006,250. As part of the settlement AZAA is under a permanent injunction not to advertise or sell automotive parts without first notifying CARB.

Both of these companies are headquartered outside of California, but our regulations still apply to out-of-state companies. It is important for all manufacturers, wholesalers, and retailers to know that anytime they assist in the distribution or sale of a non-exempted aftermarket part into California, they can, and will be held liable for that transaction. CARB staff has been effective in settling cases with companies that mainly conduct business online (e.g. Amazon and ebay) and will continue working cooperatively with these companies moving forward.

Consumer Products

CARB's consumer products enforcement programs reduce smog forming pollutants, protect public health from exposure to toxic air contaminants (TAC), and reduce GHG emissions. Staff focuses on three main types of consumer products: chemically formulated products, composite wood products, and indoor air cleaning devices. The summaries below highlight a few significant cases from 2018.

- Mothers, Polishes, Waxes, Cleaners, Inc. of Huntington Beach, California

Mothers manufactured, sold and/or supplied non-compliant metal polish products in California. Enforcement Staff purchased samples of Mothers California Gold Metal Polish, Mothers Billet Metal Polish and Mothers Mag & Aluminum Polish that contained concentrations of volatile organic compounds (VOCs) exceeding the three

percent by weight VOC limit for the Metal Polish or Cleanser Category specified in title 17 California Code of Regulations (CCR), section 94509(a). The violation resulted in 10.35 tons of excess VOC emissions. The case settled for $111,252. In addition, in lieu of changing the product for a higher VOC category, Mothers reformulated the products to meet the three percent by weight VOC limit.

- Kraft Heinz Foods Company (Heinz), of Chicago, Illinois

Heinz manufactured, sold and/or supplied non-compliant general-purpose cleaner product in California. During an inspection, the investigator found cleaning strength vinegar being offered for sale exclusively as a cleaning product. The product analysis and supplied formulation revealed a VOC concentration above the limit for the General Purpose Cleaner Category specified in title 17 CCR, section 94509(a). The excess VOC emissions emitted were 75.2 tons. Heinz modified the cleaning product to be compliant. The case settled for $700,000.

- CRC Industries, Inc. (CRC) of Horsham Township, Pennsylvania

CRC Industries manufactured, sold and/or supplied non-compliant electrical cleaners. The electrical cleaners, Lectra-Clean and Lectra-Motive, contained perchloroethylene, which is a TAC. TACs are prohibited in the Electrical Cleaner Category as specified in California Code of Regulations, Title 17, Section 94509(m) (17 CCR § 94509(m)). The sale of these products resulted in 210.8 tons of TAC emissions. Perchloroethylene is permitted in the very limited Energized Electrical Cleaner category to safely clean energized electrical equipment. To come into compliance, CRC modified the Lectra-Clean product to conform to the "Energized Electrical Cleaner" category as defined in the California Consumer Products Regulations. Additionally, CRC agreed not to sell the Lectra-Motive products in the state of California to discourage prohibited uses for energized electrical cleaners. The case settled for $625,000.

- Provenza Floors, Incorporated of Tustin, California

Provenza Floors sold and/or supplied non-compliant laminate wood flooring in California. Provenza Floors Incorporated is an importer and distributor of flooring products. The products, Provenza Caribbean Sea Nevis and Provenza Harmony Mirage, contained medium density fiberboard that had formaldehyde emissions above the limits set forth in 17 CCR § 93120.2. In addition, Provenza Floors, Incorporated was found in violation of not taking reasonable and prudent precautions, which includes the purchase and sale of flooring products in California that were not labeled. The case settled for $26,000.

Fuels

California's reformulated gasoline requirements are designed to reduce emissions from evaporation and burning of gasoline, and Low Carbon Fuel Standard (LCFS) requirements are designed to reduce GHG emissions by reducing the fossil carbon content of fuels. To enforce these programs staff conducts inspections and reviews reporting information. When a violation is identified, staff pursues the enforcement case. In 2018, staff reached settlements in several higher profile cases. For example:

- George E Warren Corporation (GE Warren) and Shell Oil Company (Shell)

On July 16, 2017, as part of a routine sampling audit, CARB inspectors collected fuel samples from all 14 compartments of the import vessel "Muhut Silver". CARB determined all 14 compartments had exceeded olefin capacity limits. The non-compliant fuel, approximately 11 million gallons, was imported by GE Warren and discharged through Shell's distribution network, ultimately being partially sold to retail customers, until sales were halted. This represents 60 percent of South Coast's average daily fuel consumption.

Once made aware of the non-compliant status of the fuel, Shell took prompt action to halt all movement and sales of the non-compliant fuel. Over several days, the non-compliant fuel was re-blended and new predictive models were submitted to CARB. Once CARB sampled and was confident the fuel was in compliance, sales and fuel movements commenced.

CARB alleged GE Warren offered for sale of supply ten compartments of non-compliant fuel for one day, and four compartments of non-compliant fuel for two days. Furthermore, as the fuel was eventually sold to retail customers, CARB alleged that GE Warren was liable for 14 violations of 10 CCR § 2268(a). In total, CARB alleged 18 violations for supplying non-compliant fuel, and 14 violations for non-compliant fuel reaching retail customers.

CARB alleged that Shell offered for sale non-compliant California Reformulated Gasoline Blend stock for Oxygenate Blending (CARBOB) for one day in three tanks, and blended non-CARBOB material with CARBOB material in seven separate storage tanks. Finally, by causing or allowing the sales of non-compliant fuel Shell is liable for five violations of 10 CCR § 2268(a). In total CARB alleged 10 violations for blending and sales of non-compliant fuel, and five violations for non-compliant fuel reaching retail customers.

GE Warren and Shell agreed to pay a cumulative penalty of $1,035,000 to resolve violations discovered by the CARB. GE Warren and Shell decided to offset $501,327 of the penalty by funding eight separate SEPs.

- Tesoro Refining and Marketing Company Limited Liability Company (Tesoro)

Staff enforces the LCFS program to maintain market confidence and ensure that no party can gain an unfair advantage through illicit practices. The LCFS is crucial to incentivizing innovative fuels that will reduce GHG emissions. An LCFS enforcement investigation involves a review of documents that support the certified Carbon Intensity (CI), LCFS Reporting Tool volumes (including production reports and a facility's accounting methodology), and feedstock sourcing. Cases referred from the program have generally focused on one of these compliance points. Corrective administrative credit adjustments precede any enforcement action, whether the adjustment is self-reported or the result of an investigation.

In March 2017, as a result of internal audits, Tesoro self-disclosed to CARB they had been misreporting significant volumes of fuels to the LCFS Reporting Tool (LRT) from 2011-2016. Tesoro formally acknowledged the mistake in a letter outlining the problems, and worked with CARB to properly account for all fuel.

Tesoro engaged in an external audit investigation and determined the errors resulted in approximately 1.9 billion gallons of misreported fuel, 157,953 unreported deficits and 24,005 unreported credits. The errors were the result of errors in Tesoro's enterprise fuel tracking software; as their operations and facility footprint expanded, Tesoro failed to update its software tracking tool.

CARB administratively removed the improperly generated credits, and an additional deterrent was added in the form of a $1,365,000 penalty. Tesoro improved its data acquisition system to ensure these errors do not reoccur.

Streamlined Truck Enforcement Process

CARB's Truck and Bus Regulation is the single most important regulation for providing the emissions reductions necessary to protect the public from diesel exhaust particulate and to help meet ambient air quality standards throughout the state. For the past four years, staff has assessed compliance rates with the Truck and Bus Regulation by combining vehicle registration, inspection, and compliance reporting data. The results indicated about 80% of the trucks subject to the rule met regulatory requirements in 2017 – and as a result there were more than 80,000 California registered trucks operating non-compliant, and more than 250,000 non-compliant trucks registered out of state in fleets reporting mileage in California.

In recognition of the extent of non-compliance, staff developed the new STEP process. The STEP process uses output from the compliance assessment to identify the longest-standing non-compliant trucks registered in California. Staff review the data and send a Notice of Non-Compliance letter to the truck owner. If the owner does not respond, or does not bring the vehicle into compliance, staff sends a NOV. This NOV is also a legal citation and complaint, issuing a $3,000 penalty to the truck owner, and

offering due process in the form of a court hearing, upon request. If the truck owner does not then bring the vehicle into compliance and settle the monetary penalty, staff places a registration hold on the vehicle. A vehicle may not register with California Department of Motor Vehicles (CA DMV) unless the owner pays a penalty and CARB releases the registration hold. This effectively enforces compliance because truck operators then cannot legally operate an unregistered vehicle on California roadways.

The STEP process has dramatically improved staff's productivity in processing and settling cases for Truck and Bus non-compliance. By the end of 2018, staff had initiated enforcement against 10,791 fleets that owned 20,966 vehicles; completing enforcement on 13,229 vehicles, including placing registration holds on 10,322 vehicles and collecting $2.1 million in penalties. Through June 03, 2019, staff has initiated enforcement against 17,690 fleets that own 32,930 trucks; including placing registration holds on 18,621 trucks and collecting more than $3.6 million dollars in penalties. Enforcement has been completed on 24,385 trucks, which means demonstration of a compliance option and payment of penalty, or the placement of a registration hold. Our goal is to complete enforcement against 35,000 non-compliant trucks by the end of 2019.

Supplemental Environmental Projects

A SEP is a project not otherwise required by law that positively impacts air quality by reducing emissions, reducing exposure to air pollution, and preventing future air quality violations. During the settlement process for a violation, responsible parties are given the opportunity to fund a project from a list of projects that comply with CARB's SEP Policy. SEPs can improve public health, reduce pollution, increase environmental compliance, and bring public awareness to neighborhoods most burdened by environmental harm.

CARB staff works with community based organizations throughout the SEP application process to ensure applications are complete and thorough. Applications are submitted through the California Environmental Protection Agency (CalEPA) SEP website[1]. Staff reviews applications to ensure they are complete, and then to ensure the project proposal meets SEP policy requirements. Staff then presents the project to the Executive Office for approval. If approved, the SEP is listed as an eligible project on both CARB's and CalEPA's SEP lists.

After staff and the violator have agreed on an appropriate penalty, staff presents a list of SEPs that have a nexus to the violation or to the violator. While staff encourages every violator to participate in a SEP, the SEP program is voluntary. If a violator

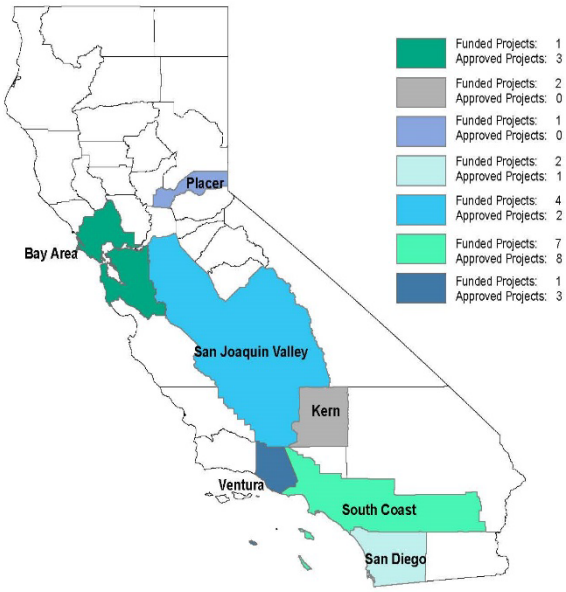
[1] https://calepa.ca.gov/sep-proposal-form/

selects a SEP, the violator can contribute up to 50% of its penalty to the project. Funds are transferred directly to the SEP, from the responsible party, for project implementation. Figure 1 shows the number of SEPs approved for potential funding, and that have received funding, by air basin in California.

In 2016, staff updated the SEP policy, and in 2017, staff transitioned to the new SEP program. Since the transition to the newer SEP process, 41 SEPs have been listed as eligible, requesting a total of $28,916,485; 22 projects have been fully funded with a total of $5,272,174; and three projects have been partially funded with a total of $964,845.

In 2018, companies found in violation funded 18 projects in California, with $2,178,674 in penalties committed, as shown in Table 1 below. The current list of funded SEPs are updated on CARB's website[2].

Figure 1 – 2018 Funded and Approved SEP by California Air Quality Districts



[2] https://ww2.arb.ca.gov/resources/documents/approved-seps

Table 1 – SEPs Funded from 2018 Cases Settled

SEP Name	Case Settlements	Total funds requested	Total SEP Funds Committed to Projects 2018	Total SEP Funds Disbursed to Projects 2018	SEP Funds Spent to date
Air Filtration and Monitoring in Barrio Logan	1	$55,634	$55,634	$55,634	$1,586
Asthma Impact Model Kern	1	$113,480	$113,480	$113,480	$60,659
Community Diesel Education & Emissions -DEEP-2	1	$10,000	$10,000	$10,000	$10,000
Community Weather Station	1	$7,500	$7,500	$7,500	$0
EcoSystems Exhibition Wing - Teen Program 55k	1	$55,000	$55,000	$55,000	$31,958
Fresno Trees*	1	$11,015,929	$72,000	$72,000	$65,320
	1		$25,000	$25,000	
	1		$84,750	$84,750	
	1		$25,000	$25,000	
Healthy Air Neighborhoods - Fresno	1	$35,000	$35,000	$35,000	$21,248
Healthy Air Neighborhoods - Porterville	1	$30,000	$30,000	$30,000	$7,464
ID of Diesel Hotspots in LAUSD and Posting No Idling Signs	1	$36,520	$36,520	$36,520	$0
Installation of Air Filtration Systems in Schools SCAQMD*	1	$2,306,935	$425,125	$0	$153,839
Marine Vessel Speed Reduction Incentive Program-350K	1	$350,000	$350,000	$350,000	$263,000
Placer County Community Based SEP Program*	1	$848,584	$3,500	$3,500	$431,115
PM Sensor Network	1	$52,500	$52,500	$52,500	$46,505
Rexland Facility	1	$50,000	$50,000	$50,000	$50,000
San Ysidro Community Air Monitor Network	1	$150,505	$150,505	$150,505	$0
South LA Urban Greening and Community Forestry Project	1	$675,000	$250,000	$0	$0
Respiratory Education and Referral System	1	$299,472	$299,472	$299,472	$91,252
VAPHER Conference	1	$47,688	$47,688	$47,688	$8,814
Total	**21**	**$16,139,747**	**$2,178,674**	**$1,503,549**	**$1,242,760**

*Multiyear project

Some highlights from the SEP program include:

- Breathmobile or Increasing Services to Children with Asthma (Prescott-Joseph Center, Bay Area – Alameda County, selected and funded in 2017)

This project is a multiyear project using $546,940 in SEP funds to increase services provided by the Breathmobile in Contra Costa County and Alameda County. The Breathmobile is a mobile clinic with the capability to perform pulmonary function studies, and to provide medical services, and asthma education services to local schoolchildren. Staffed by asthma specialists, the Breathmobile visits pre-schools, K-12 schools, and community centers every 4-6 weeks providing care for children with asthma. The program provides regular asthma provider visits, education and case management, action plans, medication, or the means to get medication and an appointment system.

- Healthy Air Neighborhoods (Central California Asthma Collaborative, Fresno, Modesto, Porterville, Selected 2017 and 2018, funded 2018)

The Central California Asthma Collaborative (CCAC) is using $100,000 in SEP funds to deliver outreach material to community members in regards to the San Joaquin Valley Air District Residential Wood Burning Rule 4901, and deliver information on other clean air incentive programs available to community members most impacted by TAC. CCAC is a non-profit organization, established by a group of healthcare professionals to provide education, direct services, and advocate to improve health through the prevention and management of chronic diseases. This is accomplished through the development of a network to improve health and the quality of life for San Joaquin Valley residents affected by air pollution, asthma, and other chronic health issues.

The funds granted to this SEP are being used to establish the Healthy Air Neighborhoods program. This door-to-door outreach effort was designed to increase awareness in regards to the Valley Air District's Residential Wood Burning Rule and increase participation in programs available to switch to a cleaner fuel system for heating the home during the high particulate matter (PM) season. The purpose of the

Residential Wood Burning Rule is to limit emissions of carbon monoxide and PM from wood burning fireplaces, wood burning heaters, and outdoor wood burning devices.

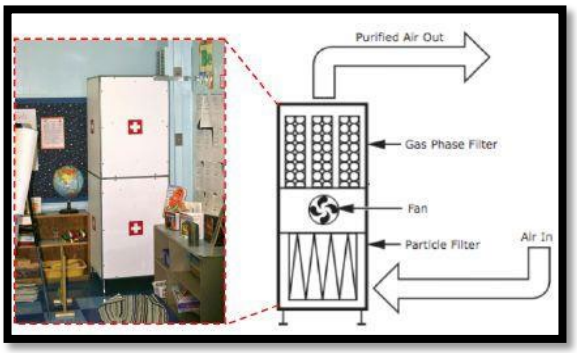
The program improved community knowledge about the requirements of the Residential Wood Burning Rule and the health reasons for reducing wood burning, as well as improve participation in the programs designed to replace fireplaces and stoves with US EPA-certified cleaner burning options. It also provided residents with information about all other clean air incentive programs such as programs to replace personal vehicles, weatherization programs, and yard machine programs.

The implementation of this program has contributed to significant reductions in wintertime PM_{10} and $PM_{2.5}$ with projected conversion of wood burning devices to natural gas or electric. Implementation for Modesto was completed in 2018, while Fresno and Porterville are still active projects expected to be finalized in 2019.

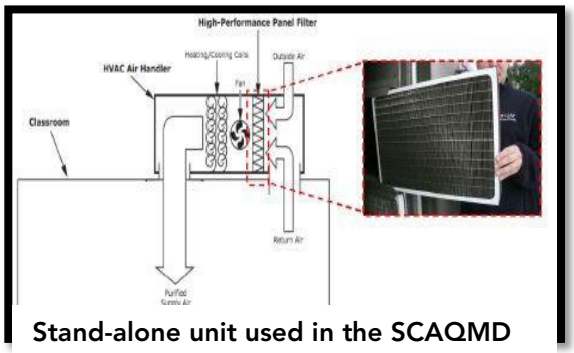
- Installation of Air Filtration Systems in Schools (South Coast Air Quality Management District (SQAQMD), Placer County Air Pollution Control District (PCAPCD))

The SCAQMD and the PCAPCD are implementing SEPs that provide funding for the installation and maintenance of high-performance air filtration systems in schools within communities most impacted by TACs. School selection criteria is based on their location, environmental, health, and socioeconomic information.

Air filtration systems in schools are designed to remove a range of PM and TACs. The specific air pollutants addressed by the air filtration systems are fine PM; ultra-fine PM; diesel particles from combustion sources such as automobiles, trucks, locomotives, ships, industry; and wildfires. In addition, these air filtration solutions are suitable to remove coarser particles such as fine dust, pollen, mold spores, and tire debris. The air filtration technology has been demonstrated to significantly reduce in-class levels of harmful ultra-fine particles, such as diesel soot and other PM. Results from the SCAQMD Pilot Study of High-Performance Air Filtration for Classroom Applications (2009) show reductions of in-classroom exposure to harmful particulate species by up to 90%. Testing results indicate that the panel filter had removal efficiencies between 89%-92% for ultrafine PM and between 88%-91% for black carbon.

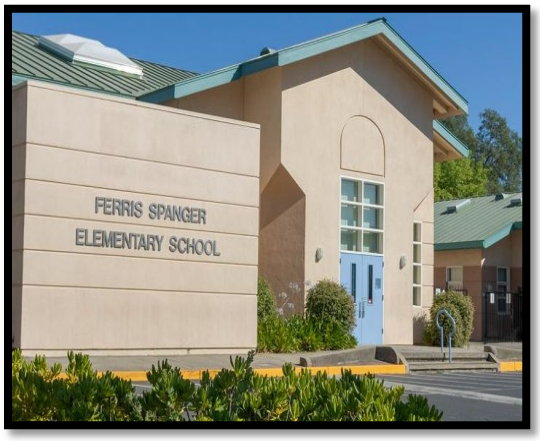


High-performance panel filters



Stand-alone unit used in the SCAQMD Pilot Study

Since 2017, a total of $1,306,935 in SEP funds have been committed for South Coast Air Quality Management District SEP. South Coast AQMD has received and invested a total of $1,269,435 in the implementation of 17 schools in Wilmington, and 1 school in Los Angeles area.



Since 2017, PCAPCD has received $ 433,125, and has invested $409,459 to fund the installation of air filtration in the following schools:

- George Cirby Elementary School, located at 814 Darling Way, Roseville, CA 95678
- William Kaseberg Elementary, located at 1040 Main Street Roseville, CA 95678
- Ferris Spanger Elementary 699 Shasta St, Roseville, CA 95678

Installation of air filtration systems in these schools was completed in June 2018. Placer County has submitted an amendment to extend the project for four additional schools in a second phase, which is awaiting selection and funding. Excess funds from the first phase of this project will be used in future air filtration projects.

CARB will continue to work with community groups, non-profit foundations, and local air districts to implement air filtration projects in disadvantaged communities impacted by air pollution throughout the State.

- Community Diesel Education and Emission Reductions Project (DEEP) Kings County, Green Action for Health and Environmental Justice, Selected and Funded in December 2017)

Green Action for Health and Environmental Justice (GAHEJ) implemented a multi-phased collaborative effort in 2018, intended to reduce diesel idling in communities. GAHEJ is an organization that works with low-income and working class urban, rural, and indigenous communities to protect health and to promote environmental, social and economic justice. DEEP used $30,000 SEP funds to accomplish providing education and printed materials to stakeholders regarding the health and environmental impacts of illegal diesel idling.

Additionally, CARB coordinated with Department of Toxic Substances Control (DTSC) and local community members to determine the location of

No Idling Sign Installation in Kettleman City, CA

new "No idling" signs in Kettleman City. Conversations started in March 2018 and the signs were installed by November 2018.

- Asthma Impact Model (AIM) Merced in Merced County (Central California Asthma Collaborative, selected and funded in 2017)

CCAC invested $35,000 in SEP funds to expand the existing AIM program in 2018 by further promoting access to healthcare and educate citizens on air pollution and behaviors that can reduce the effects of pollution.

The AIM program addresses asthma triggers, provides medical care, and asthma management for those living with asthma who have little or no access to health care. AIM program includes home assessment, air pollution exposure assessment, behavioral changes needed to reduce effects, asthma education, home remediation, doctor care and formal diagnosis, medication, and a follow-up consultation.

Through SEP funding, the expansion of the AIM program has increased the number of low income clients in Merced County, recruiting a total of 15 new AIM patients form December 2017 through December 2018, relocated the office in the city of Merced, participated in community outreach events, and provided staff training on the Asthma Impact Model and Healthy Air Neighborhoods communication and database management.

Compliance Assessment

Each year as part of our enforcement report, we analyze the state of compliance in key programs. This analysis is important because it helps identify areas for programmatic improvement and focus enforcement for maximum effect. This year we are describing compliance assessments on five programs: Ocean-Going Vessel Shore Power, Diesel Trucks / Engines, Transportation Refrigeration Units, Cargo Tanks, and the Dealership and Fleet Tampering Program.

Ocean-Going Vessel Shore Power

CARB regulations require container, refrigerated cargo, and cruise ships operating at the Ports of Los Angeles, Long Beach, Oakland, Hueneme, San Diego, and San Francisco to reduce their auxiliary engine power generation by connecting to shore power or by using an alternative technology to reduce emissions while at berth. Under the current regulation, compliance is assessed annually; effective January 1, 2017, each fleet of vessels operating at each port must reduce its power generation by 70% each year, an increase from 50% in prior years.

To measure compliance, staff compiles fleet-reported, and port-generated information on each visit of every regulated vessel in every regulated port to determine each fleet's compliance status. Data becomes available about three months after the end of the prior year, and requires six months of staff work to audit. Last year, staff audited thirty-nine shore power fleets consisting of over 4,000 visits to determine the compliance status in 2017. Staff is currently working on 2018 audits.

Last year, we reported issuing five notices of violation for non-compliance in 2015 and 2016. In 2018, staff settled its first shore power case with Mediterranean Shipping Company (MSC), as described next. We are currently working to resolve the remaining cases through the mutual settlement process.

- Mediterranean Shipping Company S.A. (MSC)

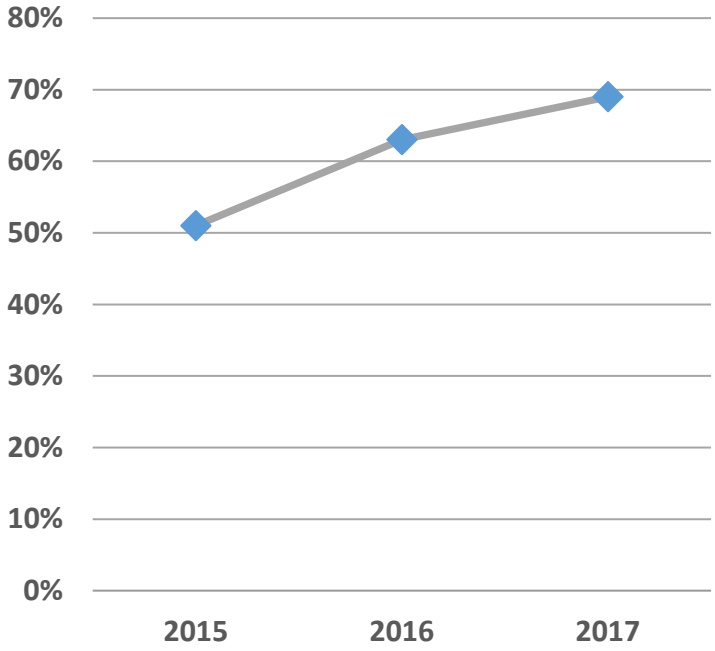
CARB discovered the violations during a routine audit of the 2014 Port of Oakland and Port of Los Angeles/Port of Long Beach (LA/LB) fleet visits. During the settlement process, CARB learned of measures MSC took to comply with the regulation including money spent to comply and circumstances that were beyond their control. Documented exceptions were granted for events outlined in ARB's 2015 compliance advisory. MSC cooperated with the investigation and took prompt action, converted its California fleet to include 100% shore power equipped new build vessels, and has been operating in a compliant fashion in subsequent years. To settle this case, MSC agreed to the $630,625 penalty for violations and was brought into compliance with CARB regulations.

- Industry-Wide Shore Power Compliance

Since implementation of the At-Berth Regulation, industry has reduced auxiliary engine usage statewide, which translates directly to emission reductions at and around the ports. As shown in Figure 2 below, actual power reductions increased from 51% in 2015, to 63% in 2016, and to 69% in 2017. Overall, the regulation is effective because overall the goal of a 50% reduction in 2015 and 2016, and of a 70% reduction in 2017, appears to be met in practice by regulated fleets.

Staff determines compliance for each visit relative to regulatory requirements and flexibilities offered through three advisories issued between 2013 and 2017. Staff grants relief for circumstances limiting the ability for ships to connect to shore power for reasons beyond vessel operators' control. Fleet operators who make the necessary investments in shore power equipment and demonstrate good faith efforts to comply may request an exception for certain visits where shore power connections were delayed or did not occur. Staff investigates each request and determines, based on that investigation, whether or not to grant the request.

Figure 2 - Percent Megawatt Hours Reduced Under the At-Berth Regulation 2015–2017

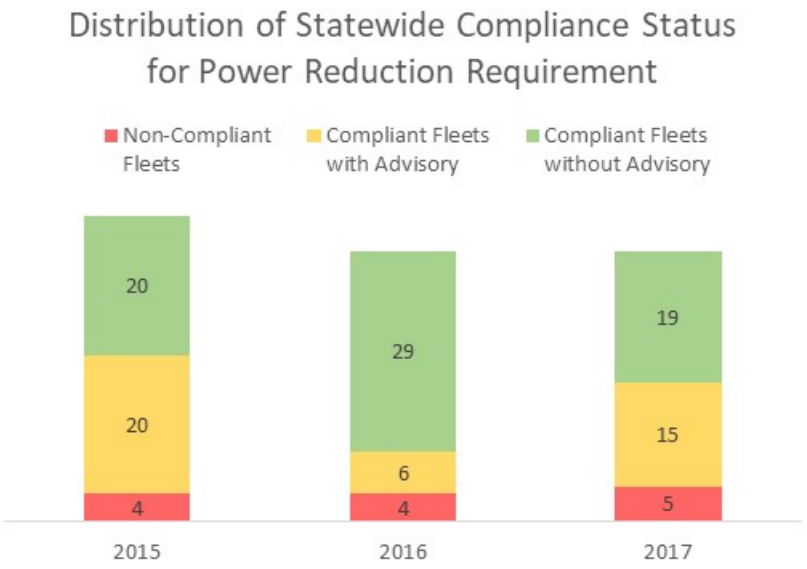


Staff determines a fleet to have one of three compliance statuses:

1. **Compliant without Advisory** – the fleet reduced its power generation by at least 50% (2015-2016) or 70% (2017) before the Advisories were applied to all appropriate visits;
2. **Compliant with Advisory** – the fleet reduced its power generation by at least 50% (2015-2016) or 70% (2017), but only after the Advisories were applied to all appropriate visits; or
3. **Non-compliant** – the fleet failed to reduce its power generation by at least 50% (2015-2016) or 70% (2017), even after the Advisories were applied to all appropriate visits.

Figure 3 below shows compliance assessment results for 2015-2017. In 2017, the number of non-compliant fleets and fleets that were compliant with advisory relief both increased from 2016. A major factor in this was the regulatory increase of power reduction requirements in 2017 from 50% to 70%. Even though more fleets required the use of the Advisory to comply, many of the visits granted advisory relief still achieved emissions reductions by plugging into shore power part of the time or using alternative control technologies. In 2017, the statewide compliance rate remained high, with 87% of all regulated fleets complying with the At-Berth Regulation.

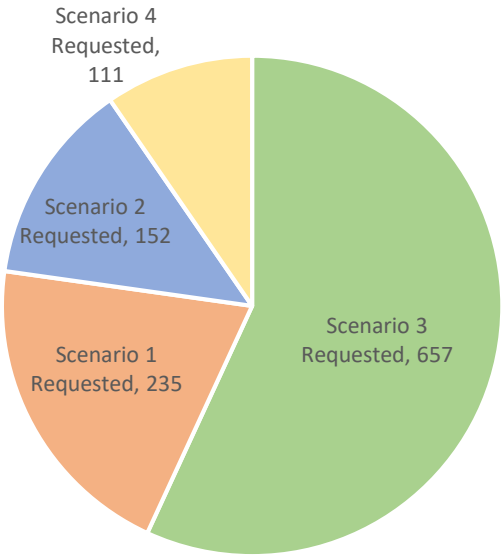
Figure 3 – Distribution of Statewide Compliance Status for Power Reduction



The Advisory provides separate scenarios intended to assist fleet operators with compliance. The four most commonly requested scenarios are Scenarios 1-4. Scenario 1 applies to visits that were not able to successfully connect to shore power for reasons beyond their control; Scenario 2 addresses successful commissioning visits; Scenario 3 deals with situations that prevent visits from meeting the three hour time limit for connecting and disconnecting shore power; and Scenario 4 addresses visits using alternative control technology to comply. Figure 4 below, indicates how many visit requests for advisory relief were submitted by all fleets for the 2017 reporting year. Scenario relief was only granted if a fleet provided sufficient supporting documentation.

Frequent complications encountered under Scenario 1 are shore- and vessel-side equipment issues, berthing position, and insufficient infrastructure. Potential solutions to these situations include increased maintenance, increased flexibility (such as cable extension systems), and additional shore power vaults at terminals. The main complications requested under Scenario 3 include labor delays and vessel- and shore-side equipment issues. Labor delays have been a

Figure 4 – Requested Scenarios from All Ports in 2017



complicated issue, but the new At-Berth Regulation is aiming to address this type of delay by adjusting the definition of a visit's arrival and departure. It is also important to remember that, although Scenario 3 requests make up more than half of all relief requests, these visits still achieve some degree of emissions reductions, whether or not they are approved.

Scenario 4 is significant in that it indicates the relative demand for alternative control technologies. With the new regulation, this demand is expected to increase and yet there are only two certified alternative control systems available today located at the Port of Los Angeles and the Port of Long Beach. Enforcement will continue to review Scenario 4 requests and communicate this information to program staff as they develop the new At-Berth Regulation.

To achieve even greater emissions benefits, CARB has begun the regulatory development process to amend the regulation including provisions that expand the vessel types and ports subject to the regulation and simplify regulatory requirements. It also aims to address the many issues vessels and terminals face at berth which prevent or delay shore power connection. Staff has estimated the cost of compliance to be between $25,000 and $75,000 per day.

Diesel Engines and Trucks

In California, engine manufacturers, truck owners, and operators are all subject to regulatory requirements designed to reduce emissions from heavy-duty diesel vehicles. In order to sell diesel engines in California, a manufacturer must certify the engine meets emissions requirements, durability and on-board diagnostic standards, and provide warranty coverage for emissions related parts (350,000 miles for heavy heavy-duty engines and 150,000 for medium heavy-duty engines Model Year 2022 or newer). Once sold the engine must meet emissions standards over the regulatory useful life (435,000 miles for heavy heavy-duty engines and 180,000 for medium heavy-duty engines) and if an engine family fails to meet the standard, the manufacturer is usually required to recall and fix the engine. Owners and operators are responsible for ensuring the engine meets the retrofit and upgrade requirements of CARB's in-use fleet rules, is kept in proper repair, and meets idling restrictions as applicable.

In-Use Fleet Rules: Truck and Bus Regulation

The largest of the in-use fleet rules is the Truck and Bus Regulation, which was adopted in 2008 and requires all heavy-duty diesel trucks operating in California to replace engines with cleaner engine technology by 2023 in order to reduce PM and NO_x emissions. Requiring truck owners to operate vehicles with cleaner engines (2010 or newer engine model year) results in significant emissions reductions. However, for many truck owners, complying with this rule has been a challenge.

CARB's recent analysis on industry-wide compliance rates for trucks subject to the Truck and Bus Regulation is shown in Table 2 below. Comparing this to last year's report, the compliance rate for heavy trucks has increased by five percent (74% to 79%). While the regulation has resulted in thousands of trucks being replaced or

retrofitted with cleaner engine technology, we estimate that in 2020 about 82,000 trucks registered in California will need to take action to comply. In addition, there are potentially more than 300,000 trucks which could be non-compliant, owned by fleets registered in other states that report mileage in California, which may also need to take action to comply if they operate within the state.

Table 2: Truck Compliance Rates

Registration	Fleet Size (Trucks)	Heavy Trucks		Light Trucks	
		Non-compliant	Compliance Rate	Non-compliant	Compliance Rate
California	1-3	25,566	71%	21,791	73%
	4-20	16,322	77%	6,314	85%
	21-100	5,549	87%	1,584	90%
	>100	3,557	92%	1,825	94%
Total CA		**50,994**	**79%**	**31,514**	**81%**
Other States	All	229,453*	78%*	1,254*	98%*
Total	**All**	**280,447**	**79%**	**32,768**	**86%**

*Heavy trucks have GVWR greater than 26,000 lbs light trucks are between 14,000 and 26,001 lbs.

To address non-compliance in California-registered trucks, state law requires that vehicle owners demonstrate compliance with the Truck and Bus Regulation before the vehicle can be registered with the Department of Motor Vehicles (DMV), starting January 1, 2020. This new requirement will compel remaining California registered truck and bus owners to replace their non-compliant engines and therefore substantially increase compliance with the Truck and Bus Regulation, ensuring that its intended emissions reductions and health protective goals are achieved. This will enable more enforcement efforts to focus on trucks registered in other states and operating in California in order to help ensure a level playing field.

Staff projects that more than 80,000 vehicles will be impacted by the January 1, 2020 registration requirement and more than 200,000 vehicles by 2023, which is a little less than half of all heavy-duty vehicles registered in California.

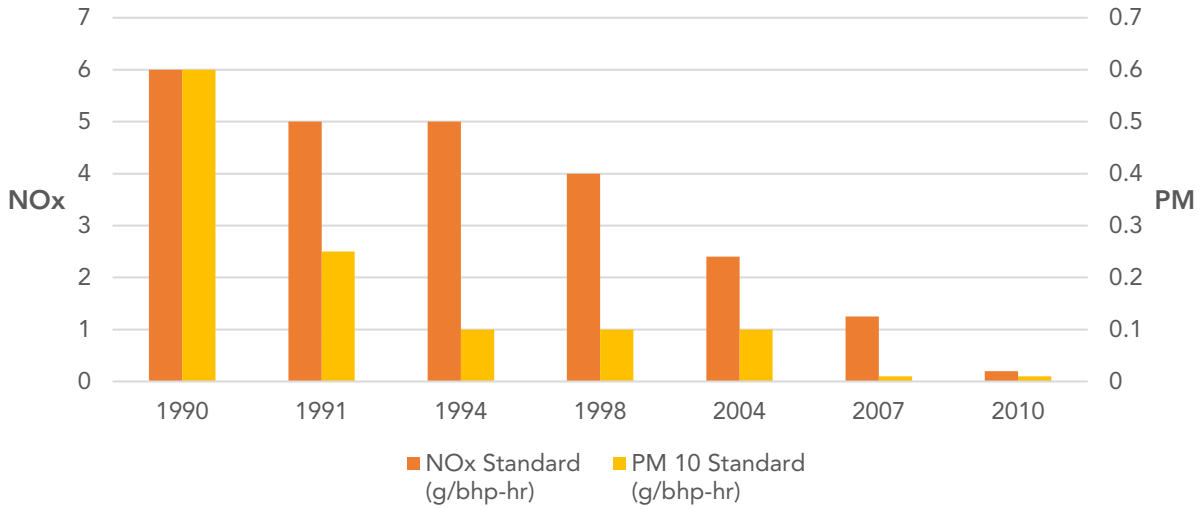
85% of the vehicles affected by the new law will be in fleets of 20 or fewer vehicles. In addition, a recent California Supreme Court decision[3] relating to the classification of independent contractors could make it more difficult for smaller fleets or single vehicle fleet owners to work as independent contractors for larger companies. The new registration requirement and this court decision suggest small fleets face significant economic challenges. To help address this issue, staff is expanding the Truck Loan Assistance Program which helps small business fleet owners secure financing to purchase trucks and buses meeting regulatory requirements.

[3] Dynamex Operations West, Inc. v. Superior Court of Los Angeles (https://www.lexology.com/library/detail.aspx?g=dbcab8b5-1a56-490e-a8eb-5fcd1e6c7473)

The Truck and Bus Regulation Has Improved Air Quality

The Truck and Bus Regulation is the most important rule, of a suite of rules, that CARB has adopted to reduce emissions from diesel powered vehicles and equipment. Figure 5 shows the increasingly stringent engine standards that apply to heavy trucks subject to the Rule, and that provide reductions of approximately 97% for NO_x and 98% for PM from 1990. The Truck and Bus Regulation required all heavy vehicles to be equipped by 2014 with a diesel particulate filter (DPF), generally meeting the lowest PM emissions in Figure 5, and is requiring the replacement of older higher NO_x emitting trucks with lowest emitting engines that meet the 2010 model year emissions standard by 2023. The 2010 and newer model year engines equipped with SCR systems and DPF dramatically reduce emissions of NO_x and PM when the emissions control systems are properly maintained and working. PM from engines operating with functional DPF are virtually immeasurable.

Figure 5: California PM and NOx New Diesel Engine Emissions Standards (Based on Engine Model Year)



Peer-reviewed research independently verifies the reduction in emissions that has occurred from these rules. For example, Bishop et al.[4] and Kozawa et al.[5] found substantial emissions reductions at Ports, when the Drayage Truck Rule, a precursor to the Truck and Bus Regulation applying to trucks operating at Ports, was implemented in the early 2010s. Another recent study found substantial reductions in elemental carbon (the primary constituent of diesel exhaust particulate) and nitrate (a major constituent in ambient particulate formed from NO_x emissions) across southern

[4] Bishop, G. A., Schuchmann, B. G., and Stedman, D. H., 2013. Heavy-Duty Truck Emissions in the South Coast Air Basin of California. *Environmental Science & Technology* 47 (16): 9523-9529.
[5] Kozawa, K.H., Park, S.S., Mara, S.L., Herner, J.D. 2014. Verifying Emission Reductions from Heavy-Duty Diesel Trucks Operating on Southern California Freeways. *Environmental Science & Technology 48.* 1475-1483.

California between 2007 and 2015.[6] Air quality will continue to improve as the Truck and Bus Regulation is implemented.[7]

The Difference Between Certification and Emissions on the Road

Emissions standards reflect a series of requirements that manufacturers must meet in order to offer engines for sale in California. These requirements specify emissions over standardized test cycles on an engine dynamometer, and are not directly representative of emissions when the engine is operated in a vehicle on the road. Staff conducts emissions testing of vehicles on a heavy-duty chassis dynamometer at CARB facilities in Sacramento and Los Angeles to test emissions from the vehicle, and also installs portable emissions testing equipment to measure emissions while the vehicle is operated on the road. Staff has understood for decades that emissions when tested from the truck on a chassis dynamometer or over the road are usually slightly higher than when tested on certification test cycles on an engine dynamometer in the laboratory. This is because the range of engine operation is broader during roadway driving than in the laboratory. These differences are estimated and input to the EMFAC model, which is CARB's model for estimating emissions from on-road vehicles. Table 3 compares on-road emissions from a four year old truck estimated using the EMFAC2017 model for each model year shown in the table to its emissions standard on an engine dynamometer.[8] Age four is used because this is the approximate age when the vehicle has reached its regulatory useful life of 435,000 miles on the engine. Staff periodically updates EMFAC emission factors as new test data becomes available.

Table 3: Projected In-Use Emissions in EMFAC 2017 for Four Year Old Trucks

	NO_x (g/bhp-hr)		$PM_{2.5}$ (g/bhp-hr)	
Model Year*	In-Use**	Standard^	In-Use	Standard^
2000	5.58	4	0.208	1
2004	4.14	2.4***	0.117	1
2008	2.57	1.2	0.015	0.01
2012	1.37	0.2	0.002	0.01

* Emissions derived from EMFAC2017 web database, at vehicle age 4.
** Assuming 3.9 bhp-hr per mile over UDDS cycle
*** HC + NOx standard
^ Standard applies on engine dynamometer certification cycle.

The current emissions standard applies to 2010 and newer trucks, and is represented in the Table using the 2012 model year. In the EMFAC2017 model, staff projects that

[6] Meng, X., Garay, M.J., Diner, D., Kalashnikova, O., Xu, J., Yu, Y., 2018. Estimating $PM_{2.5}$ speciation concentrations using prototype 4.4 km resolution MISR aerosol properties over Southern California, *Atmospheric Environment*, (181) pg 70-81.
[7] South Coast Air Quality Management District (2016. Air Quality Management Plan. Available at http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp#Chapters%20and%20Appendices
[8] EMFAC2017 web database available at: https://www.arb.ca.gov/emfac/2017/

PM emissions are substantially lower than the standard, because emissions testing has demonstrated that particulate emissions from a properly functioning DPF are virtually immeasurable. Staff also projects NO_x emissions over the road are higher than measured in the laboratory, because emissions tests have indicated that emissions from some 2010 standard engines are higher than expected. NO_x emissions from 2010 standard certified engines are still projected to be 75% lower than uncontrolled trucks, and 50% lower than trucks certified to the 2008 standard. Although actual road emissions are expected to be slightly higher than in the engine laboratory, more significant deviations from laboratory measurements requires further investigation.

Performance and Durability of New Engine Technology

There are many reasons why NO_x emissions from engines certified to the 2010 standard are higher than expected. The most important reason is that because the emissions standard applies primarily to engine operation on a test bench in a laboratory, test results are not fully reflective of operation of the engine when driving. The certification is based chiefly on laboratory testing in order to ensure controlled and repeatable tests that can be reliably compared to the emissions standard for compliance purposes. CARB testing programs have also identified that because diesel engines certified to the 2010 emissions standard use catalyst technologies in the exhaust system, emissions can be higher when the catalyst is cold and not reaching optimum temperatures for controlling NO_x emissions.[9]

After implementation of the Truck and Bus Regulation began, truck and fleet owners expressed concerns about the reliability and the perceived adverse impacts of PM filters on the performance of their trucks. In 2013, CARB investigated these claims through a PM filter evaluation study[10] and found that some fleets were experiencing issues associated with downtime caused by engine component failures such as turbochargers and exhaust gas recirculation components. The study identified two factors influencing this issue: inadequate maintenance practices and engine component durability.

In an attempt to immediately address inadequate maintenance practices through education, staff began working on developing a better understanding of heavy-duty preventive maintenance and repair quality issues. Staff convened a Preventive Maintenance Working Group of outside stakeholders, compiled manufacturer recommended maintenance practices, retrofit installer recommended maintenance practices, conducted surveys, reviewed retrofit advocate and enforcement cases, and interviewed key industry players. This effort resulted in the publication of an easy to use preventive maintenance handbook to help educate truck owners and drivers on how to prevent and identify emissions control systems issues. Staff distributes this

[9] Misra, C., Collins, J., Herner, J., Sax, T., Krishnamurthy, M, Sobieralski, W., Burntizki, M, and Chernich, D., (2013). In-Use NO_x Emissions from Model Year 2010 and 2011 Heavy-Duty Diesel Engines Equipped with Aftertreatment Devices, Environmental Science & Technology 2013 47 (14), 7892-7898.
[10] https://www.arb.ca.gov/msprog/onrdiesel/documents/DPFEval.pdf

pamphlet during inspections, it is distributed through trade organizations, and is available on CARB's website.

As part of the PM filter evaluation, staff initially analyzed warranty claims rates in 2013 for engines sold between 2003 and 2011 and found that they were high for these model years indicating that many trucks were receiving repairs for what appeared to be faulty parts. Warranty claims reflect actual repairs of engine components, though the claim requires investigation to determine which of the replaced parts was actually faulty.

Throughout implementation of the Truck and Bus Regulation, staff has continued to receive complaints from fleet owners that they were experiencing more vehicle downtime with the newer engine technology. Anecdotally, some trucking fleets have had to purchase 10% more trucks to cover increased costs of downtime related to decreased durability of newer trucks. Downtime is important because while engine repairs are costly, the truck is also not working when it is being repaired, and this can cost a fleet $500 per day or more.

To better understand durability issues, staff updated its warranty analysis in 2018. The initial and updated rates are shown in Table 4 below. Results show that initial data for 2011 MYs suggested better performance and lower claims, however the 2018 analysis showed warranty claims rates had actually increased for 2011 as a result of manufacturers not timely reporting all claims data. The 2018 analysis also showed that warranty claims after 2013 may have decreased substantially. However, as with the earlier assessment, this may be due to lack of timely reporting by manufacturers rather than an actual improvement in durability. Finally, the data indicates a high number of warranty claims being reported for SCR systems, which is the key to NO_x emissions control. Staff is investigating to ensure manufacturers are meeting warranty reporting requirements, and engine in-use emissions requirements. If violators are identified, staff will initiate enforcement.

Table 4: Warranty claims rates

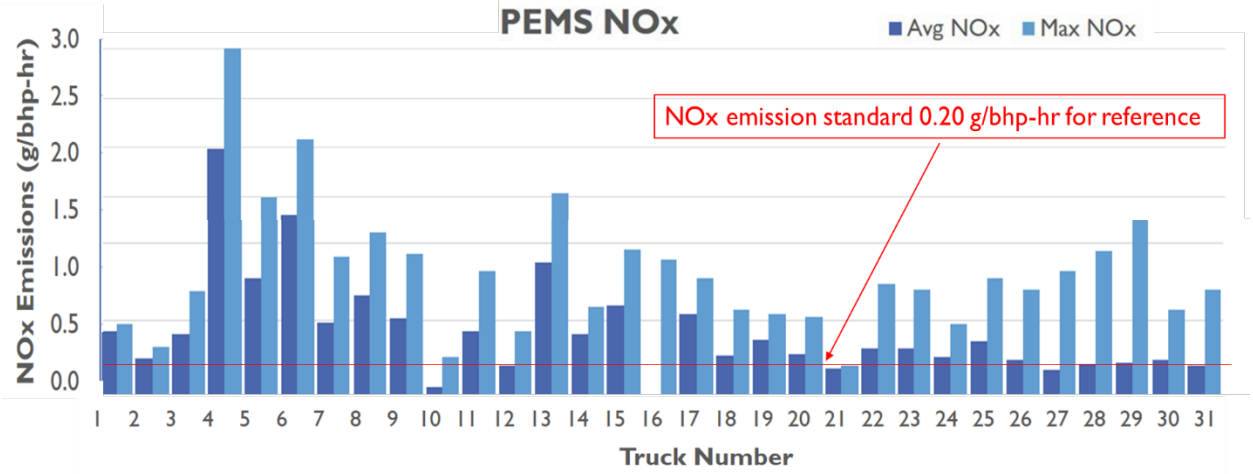
	DIESEL HHD Overall Claims Rates													
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011	2012	2013	2014	2015
DPF					35%	18%	7%	8%	4%	8%	10%	7%	6%	6%
EGR Cooler	30%	12%	5%	6%	15%	14%	21%	20%	14%	27%	20%	6%	3%	2%
EGR System	26%	42%	35%	33%	41%	44%	31%	12%	10%	21%	18%	5%	3%	1%
Exhaust Manifold	10%	9%	7%	1%	0%	1%	4%	4%	4%	5%	5%	3%	1%	1%
Injector	6%	67%	8%	3%	8%	12%	40%	22%	14%	37%	18%	8%	5%	4%
Other	16%	30%	22%	22%	90%	59%	32%	17%	11%	44%	64%	74%	82%	112%
SCR								20%	10%	56%	22%	31%	13%	8%
Turbo	15%	38%	22%	25%	18%	12%	17%	3%	3%	6%	9%	7%	3%	2%

Note: Light grey 2011 column and dark grey data is initial assessment; white colored columns are most recent assessment, blue highlight indicates rates greater than 10%

In addition to fleet operational impacts, these durability issues can have an important impact on emissions during vehicle operation. When engine components fail, they can damage emissions control system components which, if not repaired, can lead to significant excess emissions. For example, staff estimates that four percent of trucks are responsible for 50% or more of total particulate emissions from diesel trucks.[11] Assuming 680,000 heavy-duty diesel trucks are subject to these regulations, staff estimates that as many as 27,000 trucks could be non-compliant at any given time. Therefore, ensuring DPFs are kept in proper repair can substantially reduce emissions, especially in disadvantaged communities where trucks operate.

Durability issues also appear to have a significant impact on NO_x emissions from trucks. Figure 6 shows emissions from 31 trucks certified to the 2010 emissions standard and tested on a variety of different test cycles. Results show emissions are higher than expected, but still generally much lower than trucks certified to previous emissions standards, and generally consistent with EMFAC2017 emissions projections.

Figure 6: Heavy Duty In-Use Not-to-Exceed (NTE) Compliance PEMS Data



Trucking fleets are subject to Electronic Driver Log requirements to meet US Department of Transportation (US DOT) Requirements relating to hours of service requirements for truck drivers. However, to combat downtime, some fleets are using commercially provided on-board diagnostics and telematics systems in conjunction with electronic driver logging systems as a way of both complying with US DOT requirements and reducing downtime costs by identifying early warning signs of failure of the emissions control components. This industry trend is important, because the high cost of engine downtime is leading to industry innovation to help keep vehicles well maintained. Well-maintained vehicles have lower emissions than poorly maintained vehicles with compromised engine control equipment.

[11] https://www.arb.ca.gov/regact/2018/hdvippsip18/isor.pdf?_ga=2.42434150.251636809.1559592531-1493409249.1547505031

CARB is Taking Action

Staff across the Board is taking multiple actions to address implementation of the diesel certification standard and fleet regulatory requirements to help ensure compliance and the emissions reductions envisioned through regulatory action are achieved in practice. These actions include:

- *Amendments to California Emission Control System Warranty Regulations*

In 2018, CARB extended the warranty period for heavy heavy-duty engines from 100,000 miles or 3,000 hours, whichever occurred first, to 350,000 miles, with no hour limit. Extending the emissions warranty reduces emissions in two ways. First, it makes it more likely that emissions related repairs are completed because vehicle owners can get them done at no cost. Second, the increased warranty period encourages manufacturers to improve the durability of their engines and emissions control systems through the development and use of higher quality parts and materials. In addition, longer warranty lives protect consumers from having to pay for faulty parts on newer vehicles.

- *Lowering the opacity limit from 40% to 5% for DPF-equipped trucks*:

Independent studies and staff analysis indicates that four percent of trucks manufactured to the 2010 standard have emissions exceeding 5 percent opacity, and these trucks are roughly responsible for about half of all particulate emissions from these trucks. CARB adopted amendments in 2018 to the existing Heavy Duty Vehicle Inspection Program (HDVIP) and Periodic Smoke Inspection Program (PSIP) to require trucks to meet more stringent smoke opacity limits appropriate for newer engines equipped with more modern aftertreatment systems. Under the current HDVIP and PSIP, vehicles must meet a 40% smoke opacity limit. When the amendments to these programs become effective, any vehicle equipped with a DPF will be required to meet a 5% smoke opacity limit.

CARB's testing programs have confirmed that heavy- duty vehicles with functioning DPFs reduce PM emissions in excess of 90% resulting in opacity levels near zero percent but are above the standard when vehicles operate with non-functioning DPFs (broken, clogged, tampered, etc.). Remote vehicle emissions capture testing conducted under CARB contract showed that about four percent of DPF equipped vehicles exceeded a 5% opacity level.

- *In-Use Compliance and Enforcement*

Engine manufacturers are responsible for certifying new engines to meet current emission limits, and to maintain emission performance after they are initially certified. After certification, manufacturers are required to periodically test engine families for compliance with in-use emission limits and submit results to CARB.

CARB's in-use compliance program performs confirmatory checks of engines to ensure they are meeting certification requirements during the useful life of the engine. Many of the engines tested under this program are identified through the

Truck and Bus Surveillance Program (TBSP). TBSP tests a high volume of trucks using both PEMS and a heavy-duty chassis dynamometer. Engine models found to be higher emitting are then directed to the in-use compliance program for further testing.

If non-compliance is confirmed through the in-use testing program, CARB staff will work with manufacturers to issue recalls of parts found to be defective. For example, CARB's program recently identified an issue with the SCR systems used in a variety of Cummins engines that resulted in emissions of NO_x in excess of the standard. After negotiations with CARB, Cummins agreed to recall more than 800,000 heavy duty vehicles nationwide, to repair defective SCR systems. Of the vehicles recalled, approximately 300,000 vehicles weighed between 14,001 to 26,000 pounds (medium heavy-duty), and about 500,000 vehicles weighed greater than 26,000 pounds (heavy heavy-duty). Additional engine manufacturers are also being investigated.

To date, in-use compliance staff has issued recalls to 37,500 California engines in 44 heavy-duty engine test groups. Recalls require engine reprogramming, equipment replacement, or both to address durability and in-use compliance issues.

CARB's in-use testing and screening programs have also identified potential certification violations including unapproved changes to production emissions equipment after certification (running changes), undisclosed auxillary emissions control devices, and other potential violations. Enforcement staff has initiated several cases to address these violations.

- *Heavy-Duty Low NO_x Omnibus Rulemaking*

The Heavy-Duty Low NO_x program is part of CARB's overall strategy to establish more stringent emission standards and in-use performance requirements to reduce emissions from heavy-duty combustion technologies. Specifically, the program proposal includes developing new NO_x emission standards on existing certification cycles such as the Federal Test Procedure (FTP) and the Supplemental Emission Test Ramped Modal Cycle (RMC-SET); developing new certification low load cycle (LLC) and associated NO_x emission standard; revising the NTE Heavy-Duty In-Use Testing (HDIUT) program; lengthening the useful life and warranty periods; clarifying warranty corrective action provisions; and revising durability demonstration procedures. Together, these changes will gradually broaden certification requirements to include more real world operating conditions and encourage increased durability through stronger test requirements and longer warranty periods.

- *Heavy-Duty Inspection and Maintenance Program*

CARB's existing heavy-duty inspection programs rely on random field inspections by CARB staff (HDVIP) and annual self-inspections by truck owners (PSIP) to test for smoke opacity levels. These programs are useful in visually identifying high

emitting vehicles, however do not ensure NO_x controls are maintained or repaired timely.

A well-designed heavy-duty vehicle inspection and maintenance program that creates minimal operational disruption for owners could help ensure that vehicles' emissions control systems are operating as designed to meet California's public health protection goals. As an ancillary benefit, keeping vehicles tuned up and properly maintained may result in better fuel economy and less operational downtime.

To ensure NO_x controls are also well maintained and kept in proper repair, CARB staff are currently developing a more comprehensive heavy-duty inspection and maintenance program that would help ensure all vehicle emissions control systems are adequately maintained throughout the vehicles' operating lives.

CARB staff is seeking to develop a comprehensive strategy for implementing a cost effective and feasible inspection and maintenance program. Such a program could be designed to ensure trucks are kept in proper repair when operating in California, to encourage and achieve compliance with programmatic requirements, to measure program implementation and performance, to protect consumers by supporting durable and timely repairs, to support program through compliance assistance, and to provide funding for program implementation.

In summary, implementation and enforcement of diesel emissions standards and CARB in-use rules is important and increasingly efficient, but also continues to present challenges. Staff's implementation and enforcement efforts are increasingly effective, and new regulatory actions under development are crucial to further improving the emissions performance and durability of engines operating on the road to benefit both the environment and truck operators.

Transport Refrigeration Unit

Transport Refrigeration Units (TRU) are designed to refrigerate perishable goods with over 40,000 TRU operating in California on any given day. The TRU Air Toxic Control Measure (ATCM) requires owners of California-based TRUs and TRU gen sets to ensure that TRU engines meet in-use performance standards seven years after the engine model year. Compliance with the in-use performance standards is achieved by installing the required level of verified diesel emission control strategy (VDECS) or using an alternative technology. Compliance may also be maintained by replacing the engine with a cleaner new or rebuilt engine, which would then be in compliance until the seventh year after the replacement engine's model year or effective model year. Additionally, California owners are required to register equipment with CARB and report compliance information into CARB's Equipment Registration (ARBER) database.

In 2017, CARB reported on compliance rates for equipment subject to the TRU ATCM. This analysis was repeated in early 2019. To calculate rates of compliance with the TRU ATCM, ARBER data was used to determine the percentage of equipment that is reported compliant with regulation requirements. To date, 179,846 TRUs and TRU gen sets are reported in the ARBER database, of which 41,827 are identified as non-compliant. This equates to a reported compliance rate of 77%.

In addition to the reported compliance rate, field inspection data can be used to estimate a lower-bound compliance rate that accounts for equipment not registered in ARBER, including both California-based and non-California-based equipment. During 2018, CARB staff conducted 2661 TRU inspections through which 694 TRUs were identified as non-compliant due to a mix of non-reporting and failing to meet the requirements of the TRUC ATCM. This analysis indicates a lower-bound compliance rate of about 74%.

Cargo Tank and Vapor Recovery Program Compliance

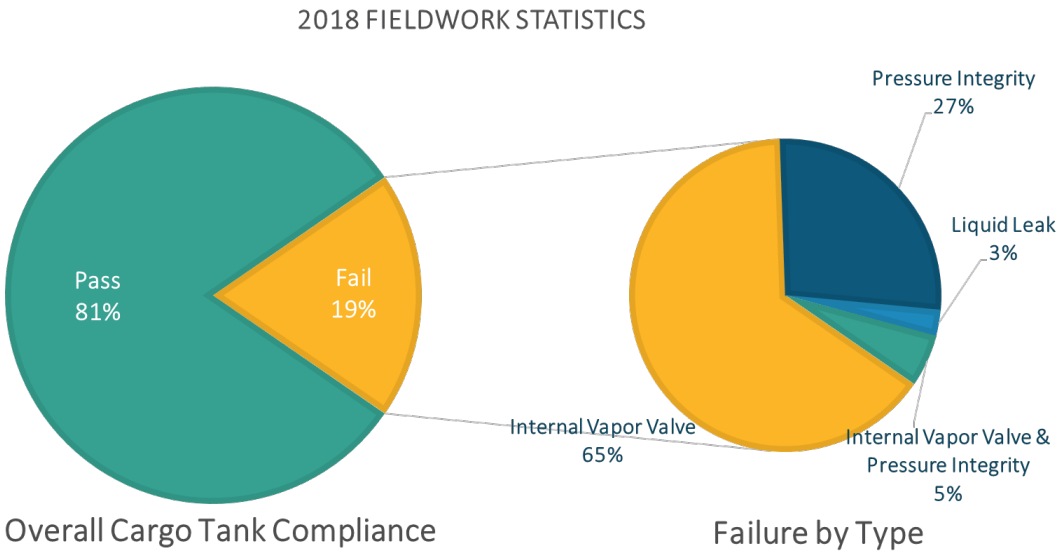
Cargo tanks are the link in transporting fuel to service stations, with the Cargo Tank Vapor Recovery Program (CTVRP) responsible for ensuring the reduction of Volatile Organic Compound emissions from Cargo tanks. In 2018, the CTVRP processed 6,058 cargo tank certification applications. During 2018, CTVRP staff conducted the public rulemaking process resulting in amendments to the Regulation for Certification of Vapor Recovery Systems for Cargo Tanks, to establish language that would allow for the periodic adjustment of certification fees associated with the program. An extensive public process for these amendments was conducted, during which stakeholders asked questions about current compliance rates. In response to stakeholder input, enforcement staff conducted a 24 day enforcement push to better assess current compliance rates.

Fieldwork during this enforcement push consisted of visual inspections for certification decals and pressure tests at loading racks. Pressure tests are performed on cargo tanks consistent with Test Procedure TP-204.2, which outlines specific procedures. These procedures involve pressurizing cargo tanks by adding compressed nitrogen after loading gasoline, which allows inspectors to measure the leak rate. Standards during this test are less stringent than the annual certification standard.

During this enforcement push, staff carried out 702 cargo tank inspections at loading racks throughout California. Staff performed pressure tests on 193 cargo tanks, issued

37 NOVs, and found a current compliance rate of 81% among tanks tested, as shown in Figure 7 below.

Figure 7: Cargo tank compliance rates found during 2018 Cargo Tank enforcement push (left). 37 NOV were issued. Failures are broken down by type (right).



*Note 2 Cargo Tanks failed both Internal Vapor Valve and Static Pressure Performance Standards

The findings from this enforcement push represent a decline in compliance rates from previous years. CARB has committed to partner with stakeholders to develop non-regulatory and innovative ways to increase compliance, including a Compliance Assistance Program (CAP).

The Cargo Tank CAP could potentially consist of training, outreach, and an industry self-inspection program. Participation in the program would be voluntary and independent of regulatory requirements. The goal of the CAP is to improve compliance rates through education and industry action, independent of enforcement.

CARB's enforcement efforts will continue; however, active participation in the voluntary CAP may be considered during the evaluation of mitigating factors for future violations, consistent with CARB's enforcement policy.

Dealership and Fleet Tampering Program

In addition to ensuring new vehicles and engines are certified to California emissions standards, staff enforces the Dealership and Fleet Tampering Program. Staff inspect automobile dealerships and commercial fleets to ensure compliance and that emissions control systems are not tampered. Taxi inspections fall under this program and have shown in the past to have high non-compliance rates. During an inspection, staff ensure vehicles are equipped with required emission controls and perform a

functional onboard diagnostic system review for 1996 and later model year vehicles. To date, staff have conducted inspections at nine facilities including John Wayne Airport in Orange County, San Francisco Airport, San Diego Airport as well as several taxicab and shuttle van fleet yards. Those inspections found 149 vehicles to be in a non-compliant status (14.7%). In comparison, approximately seven percent of similar vehicles fail their initial Smog Check inspection. 17 of the non-compliant vehicles were tampered. In 2018 work on fleet tampering was primarily follow up on compliance plans and verification of compliance from previous inspections.

Working Towards Environmental Justice

CARB is committed to prioritizing environmental justice within communities that have been disproportionately impacted by multiple sources of air pollution. This includes prioritizing inspections by focusing enforcement efforts within these impacted communities. Throughout 2018, CARB continued to focus on inspections in these areas, resulting in 59% of completed inspections performed within and adjacent to Environmental Justice (EJ) areas. Table 5 details the total number of statewide inspections and inspections performed in and adjacent to EJ areas.

Table 5 – CARB Inspections in Environmental Justice Areas

Type of Inspection	Inspections Completed	Inspections in EJ Areas / EJ Adjacent Areas	Percent of Inspection in EJ Areas / EJ Adjacent Areas
Heavy-Duty Diesel Program Inspections	18,727	10,878	58%
Ocean-going Vessel Program	523	523	100%
Commercial Harbor Craft Program	161	161	100%
Shore Power Program	59	59	100%
Cargo Handling Equipment Program	338	338	100%
Vehicle and Parts Program	957	0	0%
Refineries	70	70	100%
Terminals	59	59	100%
Service Stations	6	6	100%
Marine Vessels	9	9	100%
Railcars	5	5	100%
Other Fuels Inspections	30	30	100%
RFG Certificates	3634	3634	100%
Red Dyed Diesel Fuel	2745	0	0%
LCFS Programs	11	0	0%
Cargo Tank Inspection Program	756	756	100%
Cargo Tank Pressure Test Program	221	221	100%
All Programs	**28,311**	**16,749**	**59%**

CARB's Participation on the CalEPA Environmental Justice Task Force

Reducing emissions in disadvantaged communities is among CARB's highest priorities. For the past several years, enforcement staff had increased outreach to disadvantaged communities across the state, focused enforcement in disadvantaged communities, and supported CalEPA in multi-media enforcement initiatives. Enforcement staff's role in environmental justice programs is evolving, as new programs across the Board emerge. Staff continues to support CalEPA multi-media enforcement task forces.

The CalEPA EJ Task Force (EJ Task Force) coordinates the compliance and enforcement work of CalEPA's boards, departments, and offices, targeting areas disproportionately impacted by health and environmental factors, to prevent and reduce burdens on those communities. The EJ Task Force relies on input received from its community-based partners to identify local environmental problems, which is used to direct the enforcement and compliance efforts. What separates the EJ Task Force from other enforcement-oriented task forces is its emphasis on community involvement, by seeking community input prior to enforcement efforts. Engagement with the community continues in a "Report Back" meeting, where the environmental regulators discuss the qualitative and quantitative results of each initiative with the community members. When we select a community, our goal is to remain engaged with the community and to work collaboratively to resolve air related complaints and concerns even after the "Report Back" meeting.

CARB's role in the EJ Task Force is to identify mobile and stationary air quality related issues within a community and then to develop an enforcement action plan designed to address community concerns and achieve increased compliance with air quality emissions standards. In order to be effective, CARB coordinates with other state agencies, local air districts and other stakeholders to address air quality concerns related to illegal idling, fugitive dust, odor related issues, facility permitting concerns, and air monitoring requests.

In 2018, CARB staff participated in two EJ task force initiatives, one located in Imperial Valley and the other in South Stockton. During these initiatives, staff met with the community to better understand the need for enforcement and to discuss where the community may see potential violators. Staff then increased inspection frequency within the community during the duration of the initiative and focused on immediately reducing the impact of air pollution emissions in the designated area.

In 2018, staff performed a total of 177 inspections during the Imperial Valley initiative. Table 6 below, breaks down the number of inspections performed during the initiative by the program and type of inspection. Refrigerant Management Program (RMP) and the stationary source inspections were performed in conjunction with the Imperial County Air Pollution Control District (ICAPCD).

Staff inspected six geothermal power plants and one municipal solid waste landfill. The geothermal power plants were prioritized for inspection with respect to community concerns. Subsequent to the inspections, ICAPCD issued three NOVs to CalEnergy Corporation. CalEnergy paid a total of $180,000 in penalties, including $50,000 to fund a PM_{10} mitigation project in the community. Additionally, CalEnergy also installed lower emitting equipment to ensure emissions remained below the federal permitting thresholds into the future.

Table 6 – Imperial Valley Program Inspections

Inspection Program / Type	Total number of inspections
Consumer Products	17
Refrigerant Management	34
Stationary Source	7
Freight Hub	34
Vehicle inspections	86
Total	**178**

In 2018, CARB staff had initially met with the South Stockton community to listen to their air pollution concerns. CARB staff had begun performing inspections within the community in late 2018; the initiative ends April 2019.

Integrating Enforcement into the Community Air Protection Program

In response to Assembly Bill (AB) 617, CARB established the Community Air Protection Program (CAPP). The Program's focus is to reduce exposure in communities most impacted by air pollution. CARB staff is working closely with local air districts, community groups, community members, environmental organizations, and regulated industries to develop a new community-focused action framework for community air protection. This first-of-its-kind statewide effort, established by AB 617, includes community air monitoring and community emissions reduction programs.

Enforcement of regulations by CARB and air district staff is critical to achieving regional and local air quality goals. AB 617 requires that community emissions reduction programs include an enforcement plan. A strong and effective enforcement plan can ensure that existing and future regulatory efforts are successful at reducing emissions and improving air quality and public health within selected AB 617 communities.

CARB staff in cooperation with air district staff will tailor the enforcement plan to address specific community issues and be informed by a baseline understanding of current enforcement efforts at each source in the community, as well as the concerns of local community members. This understanding will be the result of a compliance assessment of a three-year enforcement history within selected communities.

The purpose of the three-year enforcement history is to identify and provide transparency to enforcement efforts of mobile, stationary, and area-wide sources, and then to engage community members to understand and address their enforcement concerns. CARB and the air districts will target enforcement in areas of community interest and address any shortfalls in historical enforcement efforts.

Enforcement responsibilities are jointly shared between CARB and air district staff, with CARB primarily responsible for enforcement of mobile sources and air districts primarily responsible for area-wide and stationary source enforcement. There are also cases where CARB has established memoranda of understanding with the air districts to delegate enforcement authority. In developing the enforcement plan, CARB and the air district staff will partner together to build on existing enforcement efforts and identify the best path forward for enforcing air quality rules and regulations within and directly surrounding selected communities.

TRU Enforcement Activities

In 2018, staff developed a focused inspection strategy to enforce the TRU regulation. The strategy was developed to address numerous TRU complaints from stakeholders in environmental justice communities and the lower-bound TRU compliance rates. Factors that played a role in the development of the strategy include TRU complaint statistics, meetings with stakeholders, historical data, and weather patterns.

Enforcement Division staff in conjunction with Public Information Office (PIO) media outreach staff, mobilized inspection teams to the LA Produce Mart and various other locations in Oxnard, Santa Maria, Salinas and Watsonville. Enforcement was conducted during the peak season of goods movement for strawberries, artichokes, lettuce, and other produce. There were a total of 748 TRUs inspected during this enforcement effort and 213 citations were issued, which is an overall compliance rate of 72%. Salinas and Watsonville showed the highest level of compliance with a rate of 89%, with LA Produce Mart and Santa Maria near the average, 70% and 79% respectively. Finally, Oxnard had the lowest level of compliance at only 39%.

Port Enforcement Activities

Enforcing diesel programs to achieve emissions reductions around ports heavily impacted by pollution continues to be a high priority for staff. Staff conducted over 1081 inspections at ports to enforce regulations for Cargo Handling Equipment, Commercial Harbor Craft, Ocean Going Vessel Fuel Sulfur, and Shore Power. Eighteen NOVs were issued and $1,087,250 was collected in penalties. Robust enforcement has led to some very high compliance rates ranging from 87% for Cargo Handling opacity requirements to greater than 97% for the Ocean Going Vessel Fuel Sulfur Regulation.

Program Review

Staff updated the enforcement policy in 2017, in an effort to provide additional transparency to our enforcement program. Staff is continuing to implement the updated enforcement policy pertaining to minor violations, voluntary disclosure, and updating the range of per unit penalties to provide additional deterrence.

The implementation of our SEPs will then be discussed by describing recent programs available for funding and then a recent SEP audit findings.

Implementation of the Enforcement Policy

Staff continue to implement the updated enforcement policy with respect to minor violations, voluntary disclosure, and updating the range of per unit penalties to provide additional deterrence.

- Minor Violations

In the 2017 Enforcement Policy, staff included a framework for identifying and processing minor violations. Minor violations generally involve violations of reporting with little to no impact to the functioning of the regulatory program, and no emissions impact in excess of any applicable law or regulation, where the responsible party provides complete cooperation and resolves the problem expeditiously. In 2018 staff focused on the application of its minor violation program in two areas: the Truck and Bus Regulation and the Stationary Equipment Refrigerant Management Program.

During application of STEP, staff identified 4,041 trucks which were compliant with the Truck and Bus Regulation but failed to report to CARB as required. Staff waived penalties in each of these cases as the responsible party was essentially compliant with all aspects of the regulation except reporting.

In 2018, staff also focused application of its minor violations program in the RMP regulation. RMP established requirements to reduce statewide GHG emissions from stationary facilities containing refrigeration systems with more than 50 pounds of a high Global Warming Potential (GWP) refrigerant. RMP requires facilities to conduct periodic leak inspections, repair leaks in a timely manner, keep records and report annually to an online reporting system (R3) operated by Research Division (RD). RMP also requires proper refrigerant handling and record keeping for service providers, refrigerant reclaimers and distributors. In 2018, staff resolved 103 cases without penalty in cases where the facility had in fact complied with regulatory requirements but failed to report to its compliance status into R3.

- Voluntary Disclosure

With the implementation of the 2017 updated enforcement policy, staff has reduced penalties for violations which are voluntarily disclosed. Dependent on the extent to which criteria described in the policy are met, staff may reduce penalties by 25 to 75%. In 2018, staff closed eight voluntarily disclosed cases with reduced per unit penalties ranging from $125 to $20,000, compared to the maximum per unit penalties of $1,000 to $35,000. The actual percent of reduction for voluntarily disclosed cases varied from 25 to 87.5%.

- Updating the Range of Penalties Consistent with CARB Settlements

Appendix J contains the minimum and maximum penalties assessed per unit in each program that CARB enforces. These ranges have been updated to include 2018 data.

Implementation of SEP Program

Prior to implementation of the new SEP program, staff offered violators the choice of three long-standing SEPs:

- The California Council for Diesel Education and Training SEP (CCDET) which provided training for students enrolled in diesel technology programs at participating California public community colleges.
- The Small Off-Road Engine (SORE) Education and Training SEP which provided SORE repair training for students enrolled in participating California public community colleges.
- The School Bus SEP which provided funding to upgrade or replace school buses to reduce children's exposure to diesel particulate.

In 2017, we transitioned to the new SEP program, ceased offering any of these long-standing SEPs as an option to violators, began the process to close each of the three SEPs, and implemented new procedures to review and track SEP projects.

In 2018, we commissioned Sjoberg Evashenk Consulting Inc. to audit the three long-standing SEPs. The purpose for the audit was to assess whether funds allocated to these three longstanding SEPs were spent appropriately and to review accounting and project management procedures to develop lessons learned to apply to the updated SEP program. The audit period included activity between January 2014 and December 2017.

Overall, the audit found that program expenses appeared to be consistent with program objectives. The audit did not identify any systematic mismanagement or inappropriate use of funds. However, the audit also found that enforcement staff had not established an adequate and consistent system of controls necessary to hold recipients accountable for CCDET and small engine SEP implementation. The audit is accessible online to the public at: https://ww2.arb.ca.gov/supplemental-environmental-project-sep-policy-audit.

Many of the procedures put into effect in the new SEP program address audit findings associated with the older program. In the new program, we solicit project proposals, requiring a complete scope of work, budget, and implementation timelines. We also established internal tracking of SEPs throughout funding and implementation, and for the guidance for SEP Administrators and funding recipients receiving, disbursing, transferring, or expending SEP funds. Each SEP defines clear goals, and a framework to measure outcomes and performance in meeting those goals.

In October 2018, staff established a process to maintain a central and comprehensive universe of settlement agreement information and a process to periodically perform site visits to SEP administrators and funding recipients to spot check and inspect SEP activities. In early 2019, staff initiated a new SEP tracking system and accounting procedures; new legal templates and contractual requirements for both violators and

recipients, and new guidance for recipients to ensure they can be held accountable for receiving and spending money in accordance with contractual requirements.

As a result of the audit, all new SEP recipients will be held to higher standards to ensure funding is spent appropriately and that staff has the contractual and tracking procedures in place to ensure SEP recipients meet requirements. Links to program descriptions, guidelines and forms, community outreach and events information, and lists and reports of approved, available, funded, and partially funded SEPs are available at: https:// ww2.arb.ca.gov/our-work/programs/supplemental-environmental-projects-seps.

A Review and Look Forward

The goal of staff's enforcement efforts is to establish compliance across the broad array of regulatory programs, which are designed to help reduce emissions and meet stringent air quality standards. Specifically, topics discussed looking forward are: Certification Enforcement Programs, Fuel Programs, Stationary Source Enforcement Programs, GHG and Short-lived Climate Pollutant Enforcement Programs, and Citation and Registration Programs.

Certification Enforcement Programs

Staff will continue inspecting and investigating new vehicles and engines introduced into California to verify they are certified, durable, and in their certified configuration. Staff is focusing investigations on undisclosed software, non-compliance in the field with on-board diagnostic system requirements, and potential defeat devices.

In addition to individual enforcement cases, staff has engaged with the aftermarket parts industry in an attempt to find a broader solution to non-compliance and misuse of the racing exemption. CARB is working collaboratively with industry partners ranging from manufacturers, distributors, trade representatives, and industry specific media. Our efforts are focused in four areas: compliance assistance to ensure all manufacturers, wholesalers, distributors, and retailers understand anti-tampering laws; reducing demand for performance aftermarket parts without Executive Orders in non-racing applications through compliance assistance and end-user enforcement; encouraging demand for CARB-legal aftermarket parts; and encouraging consumer awareness and voluntary industry labelling for parts sold at retail. Additionally, staff will be evaluating warranty claims data from vehicle manufacturers that have high warranty claims in certain types of parts sold in certain model years.

Moving forward, the chemically formulated consumer products program will continue to focus on a wide variety of categories including solvents, degreasers, cleaners and beauty care products. To increase effectiveness of this program, staff is supporting changes to the Consumer Products regulation that clarify the category designations, terms, and definitions. The composite wood program will continue investigating a broad range of products to include cabinets, furniture, decorative items, and products intended for children. Our investigations include all aspects of the regulatory requirements from meeting the emission standards to the precautions taken through labeling and documentation to ensure the products are compliant. Staff is also supporting the air purifier regulatory updates CARB is proposing while our investigations of air purifiers are expanding from primarily consumer products to include both commercial strength and industrial strength purifiers.

Diesel Enforcement Programs

CARB's Diesel Enforcement Program focused substantial resources in 2018 to ensuring compliance of California registered heavy-duty trucks with the Truck and Bus Regulation through STEP. This effort was supplemented by increased field inspections at border crossings to address non-compliant out-of-state trucks, and at various locations across the state to address non-compliant TRUs and off-road construction equipment. Staff also performed more comprehensive case investigations of hiring entities and more egregious violators.

Moving forward, staff will continue to identify strategies for effective and comprehensive enforcement of CARB's diesel fleet regulations. In 2019, staff will evaluate existing enforcement efforts related to CARB's diesel fleet regulations, and will identify enforcement strategies to be implemented in 2020 to increase program effectiveness and overall compliance in the industry. This will include identifying strategies to enforce the newly adopted lower opacity limits for trucks; and ensuring compliance of out-of-state trucks, TRUs, and diesel-fueled off-road equipment with required in-use performance standards. Staff also plans to increase field presence through targeted enforcement efforts and through the use of its remote monitoring platform, Portable Emissions Acquisition System (PEAQS).

Staff have already identified one location for permanent deployment of the PEAQs system and are working with California Department of Food and Agriculture to establish another location. In addition, one mobile PEAQs systems for roadside screenings will be completed by the end of the year and an additional unit should be available by mid-2020. These units will be used to screen a large portion of the heavy-duty fleet operating in California to determine vehicles for additional enforcement action.

PEAQs Roadside Trailer

There is still a great deal of work that needs to be done to further protect communities from air pollution around ports. CARB is amending regulations for the Commercial Harbor Craft, Cargo Handling Equipment, and Shore Power Regulations to increase the amount of reductions achieved. Enforcement staff are working very closely with program staff to insure the rules are enforceable and we achieve the intended emission reductions.

Fuels Programs

CARB has been actively enforcing California's fuel regulations to promote a level playing field and meet its goal to protect air quality and reduce GHG emissions. CARB fuel programs regulate high compliance conventional motor vehicle fuels, and emerging alternative fuels. Some of the program's enforcement activities include conducting inspections, audits, and in some cases sampling of fuel producers and distributors in California. Additional enforcement activities include the verification of reported compliance data from regulated entities for conventional fuels, alternative diesel fuel, and the LCFS.

CARB will further increase its enforcement of LCFS regulations to continue reducing the Carbon Intensity (CI) of all transportation fuels produced and supplied to California. The LCFS sets annual CI standards, which reduce over time, for gasoline, diesel, and the fuels that replace them such as ethanol, renewable diesel, biodiesel, renewable natural gas, electricity, and hydrogen. In 2018, CARB enforcement conducted inspections in Louisiana and found issues in two out of the three facilities audited. As a result, in 2019 CARB will be increasing its enforcement of LCFS facilities located outside its state boundaries to prevent producers that attempt to undermine the principles and goals of the regulation from gaining an unfair advantage to fuel producers inspected by CARB in California. For these out of state inspections, CARB will verify feedstock usage and its sources, alternative fuel production, and energy invoices. This would also include interviewing facility personnel and compliance officers to verify record keeping and reporting practices.

Stationary Source Enforcement Programs

Staff have traditionally used a mix of training, technical support, and oversight to ensure that emissions from stationary sources are well controlled. With the implementation of regulations to control pollution contributing to global climate change, CARB staff have also begun direct enforcement of many statewide GHG control regulations.

Air district and CARB staff training has been, and continues to be, a focus of CARB's stationary source enforcement program. Staff is currently working with the California Air Pollution Control Officers Association (CAPCOA) to develop a training plan that would deliver foundational and advanced training through a number of mechanisms, including on-line and classroom training, as well as focused seminar-style training needed to address specific enforcement and permitting challenges identified by CARB staff and the air districts. CARB anticipates that this training plan will be complete by summer 2019, and trainings will be revised as needed to reflect plan priorities identified by CAPCOA and CARB staff.

In the past year, staff has received multiple requests from stakeholders in the context of the CalEPA enforcement initiatives, implementation of the Community Air Protection Program, and development of State Implementation Plans. Most notably, review work is underway most notably in the San Joaquin Valley's Emission Reduction Credit (ERC) and Equivalency systems, and in Imperial Valley permitting and enforcement programs. In these projects, staff reviews the underlying activities, policies and regulations to ensure that the program meets applicable State and federal requirements and to determine potential areas for improvement.

- Review of San Joaquin Valley Air Pollution Control District's ERC Program

In November 2018, Earthworks – a nonprofit environmental advocacy group based in Washington D.C. – released a report documenting concerns related to how the San Joaquin Valley Air Pollution Control District (SJVAPCD) implemented its ERC banking system. In response, the Board asked staff to conduct an evaluation. Staff is conducting a review of the ERC system, including the District's equivalency demonstration, and to explain that in the context of the broader District program for reducing emissions from stationary sources, including New Source Review, permitting, and regulatory requirements. Our goal is to evaluate the program relative to federal and State law, to ensure the program is as least as stringent as federal requirements, and if applicable to identify areas for improvement.

- Imperial County Air Pollution Control District

Staff is reviewing the permitting and enforcement practices used by the Imperial County Air Pollution Control District (ICAPCD). Where improvements to ICAPCD permitting and enforcement policies are identified, we will work with the ICAPCD and the affected communities to revise them.

GHG and Short-Lived Climate Pollutant Enforcement Programs

- Landfill Methane Regulation

The CARB approved the Methane Emissions from Municipal Solid Waste Landfills regulation (LMR) which became effective June 17, 2010 that reduces emissions of methane, a GHG, from municipal solid waste landfills. The LMR allows local air districts to voluntarily enter into memoranda of understanding (MOU) with CARB to implement and enforce the regulation and to assess fees to cover costs.

CARB is utilizing the districts experience with permitting and inspecting landfills to help implement LMR regulation. Currently 23 districts have MOUs with CARB to enforce LMR in their districts, while 12 districts have not signed MOUs or do not have any landfill subject to LMR. Pursuant to the MOUs, the districts are to file annual reports with CARB on compliance activities undertaken during the previous calendar year. In 2018 only 9 of the districts with MOUs submitted the required reports. LMR requires landfills subject to the regulation to submit annual reports no later than March 15th each year.

CARB staff expects interest and efforts in the LMR program to increase in 2019. A key component of CARB's methane research and control efforts is a large-scale statewide aerial methane survey being conducted by NASA Jet Propulsion Laboratory, through funding from CARB and the California Energy Commission. The project focused on identifying and mitigating methane "super emitters" methane plumes throughout the State.

- Mandatory GHG Emissions Reporting

The California Global Warming Solutions Act of 2006 (AB 32) requires reporting of GHG emissions by major sources. The Regulation for the Mandatory Reporting of GHG Emissions (MRR) is applicable to electricity generators, industrial facilities, fuel suppliers, and electricity importers. Staff implements and oversees a third-party verification program to support mandatory GHG reporting. All GHG reports subject

to the Cap-and-Trade Program must be independently verified by CARB-accredited verification bodies and verifiers.

From 2013 to 2018, staff has settled 31 MRR cases that include emissions and reporting violations. Investigations and settlement discussions are on-going.

Citation and Registration Programs

Staff implements the Portable Equipment Registration Program (PERP). In 2018, PERP issued 3,561 registrations and renewed 7,525 registrations. On November 30, 2018, after working throughout the year with stakeholders and the Office of Administrative Law, the PERP regulatory amendment package became effective. Implementation of the regulatory amendments included substantial changes to the PERP Data Management System (DMS), public outreach regarding the regulatory changes, and deployment of the new PERP website. The implementation process will continue to be an ongoing effort as staff issues revised registration documents reflecting new regulatory requirements and colored placards for all PERP registrations. Lastly, PERP will continue to modify the PERP DMS and update program processes as necessary.

In 2018 the Cargo Tank Vapor Recovery Program (CTVRP) processed 6,058 cargo tank certification applications. During 2018, staff conducted the public rulemaking process resulting in amendments to the Regulation for Certification of Vapor Recovery Systems for Cargo Tanks, to establish language that would allow for the periodic adjustment of certification fees associated with the Program. CTVRP staff presented the proposed amendments to the Board on April 25, 2019, and the package was adopted. In addition, CTVRP staff has committed to partner with CTVRP stakeholders to develop non-regulatory and new innovative ways to improve compliance rates going forward.

Appendices

Appendix A

2018 Enforcement Programs Statistics

Program Category	Total Closed Enforcement Actions	Penalties Assessed[a]		Total Penalties Assessed
		Judgments	Settlements	
Certifications				
Indoor Air Cleaners	-	$ -	$ -	$ -
Vehicles[b]	-	$ -	$ -	$ -
Engines	1	$ -	$ 6,650	$ 6,650
Parts[c]	5	$ -	$ 1,449,474	$ 1,449,474
Portable Fuel Containers	1	$ -	$ 100,000	$ 100,000
Fuels				
Fuels Specifications	10	$ -	$ 1,793,750	$ 1,793,750
Low Carbon Fuel Standard (LCFS)	3	$ 300,000	$ 1,415,000	$ 1,715,000
Cargo Tank and Vapor Recovery	1	$ -	$ 5,000	$ 5,000
Stationary Sources				
Asbestos	-	$ -	$ -	$ -
Consumer and Aerosol Coating Products	34	$ -	$ 1,933,807	$ 1,933,807
Composite Wood Products	4	$ -	$ 57,500	$ 57,500
Refrigerant Management	-	$ -	$ -	$ -
Sulfur Hexafluoride	-	$ -	$ -	$ -
Landfill Methane Control	-	$ -	$ -	$ -
Diesel				
Diesel Fleet Investigations	24	$ -	$ 1,769,150	$ 1,769,150
Ports and Marine	10	$ -	$ 1,087,250	$ 1,087,250
Mandatory Reporting Requirements				
Mandatory Reporting Requirements	-	$ -	$ -	$ -
Subtotal of Enforcement Cases	**93**	**$ 300,000**	**$ 9,617,581**	**$ 9,917,581**
Citation Program				
Cargo Tank	-	$ -	$ -	$ -
Dealer and Fleet Tampering	8	$ -	$ -	$ -
Recreational Marine Engines	5	$ -	$ 16,000	$ 16,000
Vehicle & Parts	21	$ -	$ 53,000	$ 53,000
Heavy-duty Diesel Inspection	1,693	$ -	$ 1,135,710	$ 1,135,710
STEP	1,539	$ -	$ 2,173,900	$ 2,173,900
Subtotal of Enforcement Citations	**3,266**	$ -	**$ 3,378,610**	**$ 3,378,610**
Total Routine Actions	**3,359**	**$ 300,000**	**$ 12,996,191**	**$ 13,296,191**
Fiat Chrysler Settlement	1	$ -	$ 64,835,000	$ 64,835,000[d]
Total Enforcement Actions	**3,360**	**$ 300,000**	**$ 77,831,191**	**$ 78,131,191**

[a] The amounts shown include penalties assessed for all Case Investigation and Resolution Programs and penalties collected, including delinquent account collections, for all Field Inspection Programs (see Appendix B).

[b] Program Category Vehicles include Off-Highway Recreational Vehicle Program.

[c] An aftermarket part is issued an Executive Order, providing exemption from California anti-tampering law, if the part satisfies an ARB engineering evaluation. For more information visit ARB's Aftermarket, Performance, and Add-On Parts Regulations webpage at http://www.arb.ca.gov/msprog/aftermkt/devices/amquery.php.

[d] The amount shown includes penalties and mitigation paid to the Air Pollution Control Fund for air quality violations, and does not include penalties paid to the Attorney General's Office for unfair competition and other non-air quality violations.

Appendix B

2018 Field Operation Statistics

Program Category		Inspection Activity			Pending Citations And NOVs on 01 Jan 2018	Citation and NOV Dispositions			Pending Citations and NOVs on 31 Dec 2018	Penalties Assessed
		Product Samples Tested	Inspections Completed	Citations and NOVs Issued		Rescinded, Compliant, NFA	Closed	Total		
Marine	Ocean-going Vessel Program		523	8	3	-	8	8	3	$ 450,250
	Commercial Harbor Craft Program		161	6	1	2	-	2	5	$ -
	Shore Power Program		59	3	1	1	1	2	2	$ 630,625
	Cargo Handling Equipment Program		338	1	-	-	1	1	-	$ 6,375
	Drayage		-	-	-	-	-	-	-	$ -
	Broker Audits		-	-	-	-	-	-	-	$ -
	TRU Program (see also Heavy-duty Diesel Field Inspection Programs)		-	-	-	-	-	-	-	$ -
	Total - Marine Programs	**-**	**1,081**	**18**	**5**	**3**	**10**	**13**	**10**	**$ 1,087,250**
Vehicle & Parts	Vehicles (CNC, NON-CNC, OHRV)		184	17	22	-	21	21	18	$ 53,000
	Dealer and Fleet Citations (Tampering)		155	8	3	-	8	8	3	$ -
	Recreational Marine Engines (watercraft)		22	7	3	-	5	5	5	$ 16,000
	Engines	56	237	8	6	-	1	1	13	$ 6,650
	Parts	-	6	21	20	-	5	5	36	$ 1,449,474
	Do-it-yourself Canned Refrigerants	-	171	1	-	-	-	-	1	$ -
	Portable Fuel Containers	-	182	21	6	1	1	2	25	$ 100,000
	Total - Vehicle and Parts Programs	**56**	**957**	**83**	**60**	**1**	**41**	**42**	**101**	**$ 1,625,124**
Consumer Products	Consumer and Aerosol Coating Products	653		49	13	5	34	39	23	$ 1,933,807
	Composite Wood Products	12		8	3	-	5	5	6	$ 57,500
	Indoor Air Cleaners	-		4	-	-	-	-	4	$ -
	Total - Consumer Product Programs	**665**	**-**	**61**	**16**	**5**	**39**	**44**	**33**	**$ 1,991,307**
Fuels Programs	Refineries	422	70	5	4	-	7	7	2	$ 633,750
	Terminals	307	59	2	2	-	1	1	3	$ 300,000
	Service Stations	16	6	-	-	-	-	-	-	$ -
	Marine Vessels	75	9	-	2	-	2	2	-	$ 860,000
	Railcars	5	5	-	-	-	-	-	-	$ -
	Other	62	30	-	-	-	-	-	-	$ -
	RFG Certifications		3,634							
	Red-Dyed Diesel Fuel		2,745							
	Total - Fuels Programs	**887**	**6,558**	**7**	**8**	**-**	**10**	**10**	**5**	**$ 1,793,750**
LCFS Programs	LCFS Site Audits	-	6	1	-	-	-	-	1	$ -
	LCFS Paper Audits	-	5	1	2	-	3	3	-	$ 1,715,000
	Other	-	-	-	-	-	-	-	-	$ -
	Total - LCFS Programs	**-**	**11**	**2**	**2**	**-**	**3**	**3**	**1**	**$ 1,715,000**
Cargo Tank Programs	Cargo Tank Inspection Program		756	-	-	-	-	-	-	$ -
	Cargo Tank Pressure Test Program		221	40	3	3	-	3	40	$ -
	Annual Test Observation Program		-	1	-	-	1	1	-	$ 5,000
	Total - Cargo Tank Programs	**-**	**977**	**41**	**3**	**3**	**1**	**4**	**40**	**$ 5,000**
Total – All Programs		**1,608**	**9,584**	**212**	**94**	**12**	**104**	**116**	**190**	**$ 8,217,431**

Appendix B

2018 Field Operation Statistics

Program Category		Inspection Activity			Pending Citations on 01 Jan. 2018	Citations Dispositions			Pending Citations on 31 Dec. 2018	Penalties Collected
		Inspections Completed	Citations Issued	Ratio of Citations to Inspections		Rescinded, Compliant, NFA	Closed	Total		
Heavy-duty Diesel Inspection Programs	Heavy-duty Vehicle Inspection Program	4,392	101	2%	188	1	95	96	193	$ 40,080
	Emission Control Label Program	2,514	192	8%	745	2	163	165	772	$ 88,744
	Commercial Vehicle Idling Program	5,944	238	4%	1,231	3	57	60	1,409	$ 17,800
	Solid Waste Collection Vehicle Program	20	4	20%	16	-	1	1	19	$ 2,000
	Truck and Bus Program	6,669	569	9%	4,452	17	225	242	4,779	$ 195,465
	Tractor-Trailer (GHG) (SmartWay®) Program	2,046	157	8%	150	5	119	124	183	$ 135,900
	Drayage Truck Regulation Program	1,021	32	3%	303	5	15	20	315	$ 8,300
	Transport Refrigeration Unit Program	3,074	1,175	38%	3,452	34	508	542	4,085	$ 446,110
	Off-road Diesel Vehicle Program	4,939	631	13%	1,084	94	510	604	1,111	$ 201,311
	Diesel Exhaust Fluid /Selective Catalytic Reduction	263	-	0%	-	-	-	-	-	$ -
	School Bus Idling Program	8	-	0%	1	-	-	-	1	$ -
	Other Programs	-	-	0%	-	-	-	-	-	$ -
Total – Heavy-duty Diesel Field Program Inspections		**30,890**	**3,099**	**10%**	**11,622**	**161**	**1,693**	**1,854**	**12,867**	**$ 1,135,710**

Total California Vehicles Inspected	**8,402**
Total Out-of-State Vehicles Inspected	**5,490**
Total Off-Road Vehicles Inspected	**4,835**
Total Number of Vehicles Inspected[a]	**18,727**

[a] Each vehicle can be inspected in more than one program

Vehicles Inspected in EJ Areas	**10,878**
Inspections in EJ Areas	**19,778**
Citations in EJ Areas	**1,724**

Appendix C

2018 Complaint Program Statistics

CalEPA and ARB Hotline Services 2018	Complaints Received	Complaints Referred to Air District	Investigated By ARB	Other Dispositions[a]	Total Complaints Resolved
Stationary Source Complaints	868	868	0	0	868
Vapor Recovery Complaints	217	217	0	0	217
School Bus Idling Complaints	71	0	71	0	71
Commercial Vehicle Idling Complaints	226	0	226	0	226
Smoking Vehicle Complaints	8,804	0	0	8,804	8,804
Heavy Duty Diesel Program Complaints	972	0	588	204	792
All Other Complaints[b]	260	0	89	171	260
Total Complaints	**11,418**	**1,085**	**974**	**9,179**	**11,238**

[a] Complaints referred to an external agency or those without enough information to take action
[b] Includes Weights and Measures complaints and those that fall outside the purview of ARB

Appendix D

2018 Portable Equipment Registration Program Statistics

Table D-1. PORTABLE REGISTRATION – NEW APPLICATIONS					
(January 1, 2018 - December 31, 2018)					
	Application Count	Registration Unit Count	Unit Count By		
			Engine	Equipment	TSE[a]
Received	2,129	4,403	3,516	886	1
Issued	1,799	3,561	2,904	657	0
Deemed Incomplete[b]	192	335	262	73	0

[a] Tactical Support Equipment (TSE)
[b] Includes some applications from latter part of previous year – data based on date deemed incomplete.

Table D-2. PORTABLE REGISTRATION – RENEWAL APPLICATIONS				
(January 1, 2018- December 31, 2018)				
	Application Count	Registration Unit Count	Unit Count By	
			Engine	Equipment
Invoices Mailed	4,082	7,751	6,722	1,029
Issued[a]	3,951	7,525	6,561	964
Not Renewed[b]	1,283	2,430	2,074	356
Deemed Incomplete	162	325	314	11
TSE Annual Reporting[c,d]	34	34	2,689	0

[a] Multiple unit renewal applications include units that are renewed and those that are not renewed.
[b] See above note.
[c] TSE has different requirements in that one application/registration is designated for each base and only total unit counts are required based on facility information as of 12/31/16 (end of previous calendar year).
[d] Includes only active TSE registrations which may include TSE registrations with 0 units; expired TSE registrations are not included.

Table D-3. PORTABLE REGISTRATION-NET REVENUE	
Renewal Activity Net Fees	$4,717,195.40
All Other Activity Net Fees	$2,664,140.00
Total Net Revenue	$7,381,335.40

Appendix E

2018 Enforcement Support Statistics

Air District Hearing Board Programs	
Variances Received and Reviewed	215
Notices Reviewed	265
Abatement Orders Received and Reviewed	40

Federal Data Reporting Services	
Full Compliance Evaluation (FCE) Reports Received and Reviewed	70
FCE Reports Entered	31
Federally Enforceable Violation Reports Received and Reviewed	63
Federally Enforceable Violation Reports Entered into US EPA Database	55

Perchloroethylene Program Services	
Inspections Completed	0
Investigations Completed	0
Violations resolved	0

Other Stationary Source and Equipment Inspections	
Stationary Source Inspections and Investigations	2
Other Airborne Toxic Control Measure Inspections/Investigations	0

Asbestos National Emissions Standard for Hazardous Air Pollutants Program	
Renovation and Demolition Notifications Received and Reviewed	891
Inspections Completed	12
Violations Resolved	0
Task Force Workshops Conducted	2

Landfill Methane Gas Program Services	
Inspections Completed	1
Investigations Completed	0
Violations Resolved	0

Refrigerant Management Program	
Inspections Completed	47
Investigations Completed	223
Violations Resolved[a]	146

[a] Includes minor violations resolved with no penalty.

Sulfur Hexafluoride Regulation Programs	
Inspections Completed	0
Investigations Completed	0
Violations Resolved	0

Appendix F

2018 Training Program Statistics

Training Programs	Sessions	Students
Grand Total	**110**	**4,854**
Subject Summary		
Subject	**Sessions**	**Students**
Technical (Pollutant, Facility/Process, Pollutant Modelling & Monitoring)	33	607
Visible Emissions Evaluation (Certification)	53	1816
Regulatory (California & Federal)	11	355
Internal Training	3	55
Basic Inspector Academy	10	283
In-Class Training Total	**110**	**3,116**

Online Summary				
Title	**District**	**CARB**	**Other[a]**	**Total**
AP101 - Air Academy Online Training (AAOT): Online	48	59	326	433
AP102 - Air Quality Training Program (AQTP): Online	68	30	175	273
AP106 - CalEPA Fundamental Inspector Course (FIC): Online Training	52	24	512	588
CR103 - Chrome Plating ATCM Certification: Online (Recorded)	10	7	44	61
ED102 - Enforcement Fundamentals: Standard Documentation (Online)	0	17	0	17
MM104 - Visible Emissions Evaluation: Online	65	15	255	335
PS105 - Stationary Control Source Technology (Online)	12	17	2	31
Online Training Total	**255**	**169**	**1,314**	**1,738**

[a] Other students may include regulated industry, environmental regulators, and community members.

In-Class Training Totals		
Technical		
Pollutant Specific		
PS101 - Control Technology: Particulate Matter (PM)	2	39
PS102 - Control Technology: Volatile Organic Compounds (VOCs)	2	38
PS103 - Control Technology: Oxides of Nitrogen (NOx) & Carbon Monoxide (CO)	2	42

Appendix F

2018 Training Program Statistics (Cont'd)

Training Programs	Sessions	Students
Facility/Process Specific		
FP101 - Gasoline Dispensing Facilities: Phase I and II Enhanced Vapor Recovery (EVR) Systems	2	30
FP102 - Gasoline Dispensing Facilities: Enhanced Vapor Recovery (EVR) Testing	2	31
FP106 - Internal Combustion Engines: Stationary Gas Turbines & Power Plants	3	57
FP107 - Industrial and Utility Boilers: Natural Gas Fired	2	33
FP109 - Asbestos Demolitions & Renovations: Contractors & Property Managers	1	13
FP110 - Asbestos Demolitions & Renovations: Regulatory Staff	2	42
FP111 - Batching Operations: Aggregate, Concrete & Asphalt	3	51
FP112 - Batching Operations: Aggregate, Concrete & Asphalt: Webinar	2	60
Pollutant Monitoring and Modeling		
MM201 - Continuous Emission Monitoring: Advanced	3	66
MM102 - Observing Source Tests	0	0
MM203 - Health Risk Assessments: Advanced	7	105
MM105 - Visible Emissions Evaluation: In Class	9	163
MM106 - Visible Emissions Evaluation: Day Certification	38	1,506
MM107 - Visible Emissions Evaluation: Night Certification	6	147
Regulatory		
California Regulations		
CR101 - Portable Equipment Registration (PERP)/Portable Diesel Engine ATCM	10	342
CR102 - Internal Combustion Engines: Stationary Diesel ATCM	1	13
CR105 - Landfills: Landfill Gas Control Facilities	0	0
Federal Regulations		
FR101 - New Source Review & Title V Permitting: Introductory	0	0
FR201 - New Source Review & Title V Permitting: Advanced	0	0
298 - Title V Permitting Overview	0	0
FR102 - Compliance Assurance Monitoring (CAM)	0	0
Other Air Quality Professional Training		
AP206 - CalEPA Basic Inspector Academy (BIA): In Class	10	283
ED101 - Enforcement Fundamentals (Internal)	3	55

Appendix G

2018 CARB Eligible Supplemental Environmental Projects

SEP Name	Location	Project Summary
Coachella Valley Mitigation Project Extension 2018-2023	Coachella Valley	IQAir Foundation, in collaboration with Comite Civico Del Valle, Inc (CCV). and IQAir North America, Inc., proposes a SEP to install and maintain high-performance air filtration systems in schools located in communities impacted by air pollution, especially Environmental Justice and/or Disadvantaged Communities disproportionately impacted by toxic air contaminants. IQAir Foundation, in collaboration with IQAir North America, Inc. will install the air filtration systems, and work with the local community and school district on the mitigating impacts of air pollution. There are 20 schools selected for this project, all located in Coachella Valley.
Community Based Monitoring and Assessment Program for Fresno	Fresno City, and unincorporated Fresno County Communities (Malaga, Calwa, SE Fresno)	This project proposes to use community based air quality monitoring, modeling and related outreach to inform residents about air quality issues in their communities, and to reduce exposure to air pollutants, thus providing protection for public health. Sonoma Technology Inc, will work alongside Central California Environmental Justice Network and community members to establish monitoring locations. The data collected will help community stakeholders in the Fresno region to understand the potential need for air quality mitigation.
Community Voices on Health and the Environment	Los Angeles County	The Wilmington Wire is a local non-profit organization that distributes information about the Wilmington community near the Port of Los Angeles. The proposed SEP will utilize funds to hire three community correspondents to write 1-2 articles per month over the course of a year focusing on environmental health hazards in the community and resources available to them.
Installation of Air Filtration Systems in Schools	South Coast District	SCAQMD proposes a SEP to install and maintain high-performance air filtration systems in schools located in communities impacted by air pollution, especially Environmental Justice and/or Disadvantaged Communities disproportionately impacted by toxic air contaminants. It will partner with IQAir for installation of the air filtration systems, and work with the local community and school district on mitigating the impacts of air pollution.

Appendix G

2018 CARB Eligible Supplemental Environmental Projects (Cont'd)

SEP Name	Location	Project Summary
Installation of Air Filtration Systems in Schools Oakland	Oakland	IQAir Foundation in collaboration with Communities for a Better Environment and IQ Air North America, Inc. proposes a SEP to install and maintain high-performance air filtration systems (~ 89% reduction of UFPs and black carbon) in schools located in communities impacted by air pollution within Oakland Unified School District. A total of 11 schools will be benefited, and the length of this SEP is expected to be 5 years. The project sites are located in a Cal EnviroScreen Percentile Range of 85-90%
Installation of Air Filtration Systems La Canada	La Cañada Flintridge	IQ Air Foundation in collaboration with La Canada Flintridge for Healthy Air and IQ Air North America, Inc. proposes to install and maintain high-performance air filtration systems in 5 schools and education centers in La Canada Flintridge, California. The restoration project is expected to remove 1.7 million cubic yards of sediment over 4 years from the reservoir behind Devil's Gate Dam, thus students and staff at La Canada schools will potentially experience cumulative exposure to toxic diesel emissions and particulate matter from restoration project activities.
Installation of Residential Air Filtration Systems	South Coast District	This SEP will install and maintain air filtration systems in residential areas within EJ/DAC's most impacted by toxic air contaminants.
Kids Making Sense (KMS) Youth Education, Southern California	Southern California	Kids Making Sense (KMS) is a youth education program for schools located in disadvantaged areas (areas with a CalEnviroScreen score of 80% or higher) throughout California. KMS teaches students in grades 6-12 about monitoring and improving air quality in their communities. This program will benefit students and residents by educating them about local air quality issues and by empowering them to develop and implement actions to improve local air quality and/or their exposure to sources of air pollution. The proposed schools are located in the following cities Brawley (1), Rosemead (2), San Pedro (1), Whittier (1). Each of the schools listed is ranked at CalEnviroScreen v.3.0's 81-90% level, which is the second highest level. This ranking indicates that these schools are located in some of the most impacted EJ areas in California.The cost per school is $29,900.00

Appendix G

2018 CARB Eligible Supplemental Environmental Projects (Cont'd)

SEP Name	Location	Project Summary
Kids Making Sense, Youth Education, Northern California	Northern California	Kids Making Sense (KMS) is a youth education program for schools located in disadvantaged areas (areas with a CalEnviroScreen score of 80% or higher) throughout California. KMS teaches students in grades 6-12 about monitoring and improving air quality in their communities. This program will benefit students and residents by educating them about local air quality issues and by empowering them to develop and implement actions to improve local air quality and/or their exposure to sources of air pollution. The proposed schools are located in the following cities: Antioch (2), Pittsburg (1). Each of the schools listed is ranked at CalEnviroScreen v.3.0's 81-90% level, which is the second highest level. This ranking indicates that these schools are located in some of the most impacted EJ areas in California.The cost per school is $25,400.00
Marine Vessel Speed Reduction Incentive Program-500K	Ventura and Santa Barbara Counties	This SEP will establish the Vessel Speed Reduction (VSR) Program. The VSR Program is an incentive program to encourage ocean going vessels traveling through Ventura and Santa Barbara Counties to reduce their speed, thus lowering emission levels and reducing the risk of fatal ship strikes to wildlife in the area.
Marine Vessel Speed Reduction Incentive Program-700K	Ventura and Santa Barbara Counties	This project is an incentive project to encourage Ocean Going Vessel Speed Reduction (VSR) to less than 12 knots in VSR areas of the Santa Barbara Channel. Reducing vessel speed helps reduce the levels of ozone forming NOx for that region. The NOx reduction based on a trial program run in 2014 was 12.4 tons of NOx from 27 ship transits. The cost effectiveness was $3.67 per pound of NOx. Reducing NOx is important in this region because Ventura County does not meet federal and state ozone standards and Santa Barbara does not meet state ozone standards. The goals of this project are: • Incentivize ships to slow down and reduce ozone forming NOx emissions • Reduce accidental "kill" of large marine mammals such as whales.

Appendix G

2018 CARB Eligible Supplemental Environmental Projects (Cont'd)

SEP Name	Location	Project Summary
Monitoring VOCs via SPME/GC/MS	San Francisco	This SEP proposes to establish a working relationship between the Bayview Hunters Point (BVHP) community, students and faculty at San Francisco State University (SFSU), and subject matter experts at the California Air Resources Board (CARB) and Bay Area Air Quality Management District (BAAQMD) to study air quality in the BVHP district of San Francisco. The major objectives of this proposal are twofold – to develop and implement a new method for VOC monitoring and to establish baseline data on VOC levels in various locations in BVHP. The target VOCs selected are based on their common presence and relatively high concentrations in urban air samples as well as their toxicity.
Survey of Freight Truck Transportation Corridors	Wilmington	The Coalition for a Safe Environment proposes to conduct truck counts in Wilmington over a three month period to provide information to support public comments on environmental planning efforts affecting the Ports of LA and Long Beach.
Fresno TREES	Fresno County	This project will strategically place green barriers downwind of major sources of pollution, and use air monitors to evaluate how effective green barriers are at protecting people from exposure to air pollution. It also aims to reduce greenhouse gases by sequestering carbon. Lessons learned from this study can help influence the selection of vegetation used for green barriers, and the placement of vegetation for future projects.
Placer County Community Based Supplemental Environmental Project Program	Placer County	This SEP will install and maintain high-performance air filtration systems in schools within communities most impacted by toxic air contaminants within the Placer County air district.
Community Weather Station	Wilmington	To provide the community with information regarding weather patterns and its potential effects on local air quality.
Respiratory Education and Referral System	Eastern Coachella Valley	To provide health education and public health services.
Rexland "Indoor/Outdoor" Soccer Field	Rexland	To reduce VMT and provide a CO2 reduction.
Placer County Community Based SEP Program	Placer County	To reduce particulate matter and black carbon in schools located in communities impacted by air pollution.
Air Filtration and Monitoring in Barrio Logan	Barrio Logan	To project will reduce particulate matter and black carbon in residences located in communities impacted by air pollution. It will also measure indoor and outdoor air quality.

Appendix H

2018 Enforcement Settlement Agreements

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Certifications	Engine	Tractor Supply Company	$ -	$ 6,650	$ 6,650	$ -
	Parts	Pep Boys: Manny, Moe & Jack	$ -	$ 356,000	$ 356,000	$ -
		Green Diesel Engineering, LLC.	$ -	$ 50,000	$ 25,000	$ 25,000
		Young's Truck Center, Inc.	$ -	$ 14,500	$ 14,500	$ -
		Enviromotive	$ -	$ 22,724	$ 15,224	$ 7,500
		AZAA Investments, Inc. fka AutoAnything, Inc.	$ -	$ 1,006,250	$ 1,006,250	$ -
	Portable Fuel Containers	The Plastics Group	$ -	$ 100,000	$ 100,000	$ -
Fuels	Fuels Specifications	Shell Oil Products US	$ -	$ 45,000	$ 45,000	$ -
		Shell Oil Products US	$ -	$ 20,000	$ 20,000	$ -
		BP West Coast Products LLC	$ -	$ 125,000	$ 125,000	$ -
		BP West Coast Products LLC	$ -	$ 125,000	$ 125,000	$ -
		Tesoro Refining & Marketing Co	$ -	$ 157,500	$ 157,500	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Fuels	Fuels Specifications	Tesoro Refining & Marketing Company	$ -	$ 200,000	$ 200,000	$ -
		Tesoro Refining & Marketing Company	$ -	$ 26,250	$ 26,250	$ -
		George E. Warren	$ -	$ 735,000	$ 383,673	$ 351,327
		Shell Pipeline Company LP	$ -	$ 300,000	$ 150,000	$ 150,000
		Tesoro Refining & Marketing Company	$ -	$ 60,000	$ 30,000	$ 30,000
	LCFS	Paramount Petroleum	$ 300,000	$ -	$ 300,000	$ -
		Tesoro Refining & Marketing Company LLC	$ -	$ 1,365,000	$ 1,365,000	$ -
		Musket Corporation	$ -	$ 50,000	$ 25,000	$ 25,000
	Cargo Tanks	Empire Tanker	$ -	$ 5,000	$ 5,000	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Stationary Sources	Consumer Products	Technical Chemical Company	$ -	$ 3,000	$ 3,000	$ -
		Houston's Inc./Nature's Therapy	$ -	$ 28,500	$ 28,500	$ -
		CRC Industries	$ -	$ 625,000	$ 325,528	$ 299,472
		FPC Corporation	$ -	$ 2,250	$ 2,250	$ -
		FTI / Troy Corp	$ -	$ 14,500	$ 14,500	$ -
		George Basch Company	$ -	$ 27,600	$ 27,600	$ -
		Glaze N Seal	$ -	$ 4,050	$ 4,050	$ -
		Griffin Brands	$ -	$ 2,250	$ 2,250	$ -
		Griffin Bros., Inc.	$ -	$ 4,500	$ 4,500	$ -
		Kraft Heinz Foods Company	$ -	$ 700,000	$ 350,000	$ 350,000
		Hillhouse Naturals Farm	$ -	$ 3,000	$ 3,000	$ -
		Hobby Lobby	$ -	$ 4,920	$ 4,920	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Stationary Sources	Consumer Products	ITW Pro Brands	$ -	$ 10,920	$ 10,920	$ -
		K. Hall Studio, Inc.	$ -	$ 2,000	$ 2,000	$ -
		Lamp Stand LLC	$ -	$ 3,000	$ 3,000	$ -
		L'Occitane	$ -	$ 10,000	$ 10,000	$ -
		Maesa LLC	$ -	$ 31,800	$ 31,800	$ -
		Medline Industries	$ -	$ 50,800	$ 50,800	$ -
		Mother's	$ -	$ 111,252	$ 56,252	$ 55,000
		Bushnell Holdings Inc.	$ -	$ 29,055	$ 29,055	$ -
		Airosol Company	$ -	$ 13,400	$ 13,400	$ -
		RSC Chemical Solutions	$ -	$ 24,000	$ 24,000	$ -
		Sheila Shine	$ -	$ 75,000	$ 75,000	$ -
		Tamiya America, Inc.	$ -	$ 6,750	$ 6,750	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Stationary Sources	Consumer Products	Thalgo	$ -	$ 2,250	$ 2,250	$ -
		The Honest Company, Inc.	$ -	$ 37,050	$ 37,050	$ -
		The Save Mart Companies	$ -	$ 29,800	$ 29,800	$ -
		This Stuff Works	$ -	$ 5,000	$ 5,000	$ -
		Tirox	$ -	$ 3,000	$ 3,000	$ -
		U.S. Standard Products	$ -	$ 23,760	$ 23,760	$ -
		United Perfumes Limited	$ -	$ 6,000	$ 6,000	$ -
		Vered Cosmetique Inc.	$ -	$ 4,000	$ 4,000	$ -
		Western Family Foods, Inc.	$ -	$ 17,400	$ 17,400	$ -
		White Sands	$ -	$ 18,000	$ 18,000	$ -
	Composite Wood	Coles Fine Flooring	$ -	$ 6,000	$ 6,000	$ -
		Factory Direct Floor	$ -	$ 7,500	$ 7,500	$ -
		Provenza Floors	$ -	$ 26,000	$ 26,000	$ -
		Rivera's Floor Covering	$ -	$ 18,000	$ 18,000	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Diesel	Diesel Fleet	American Transportation Sightseeing	$ -	$ 10,000	$ 10,000	$ -
		Merced Union High School District	$ -	$ 3,750	$ 3,750	$ -
		Hennings Bros Drilling Co.	$ -	$ 51,000	$ 51,000	$ -
		Cal Electro Incorporated	$ -	$ 10,800	$ 10,800	$ -
		Schlumberger Lift Solutions	$ -	$ 2,625	$ 2,625	$ -
		LKQ Corporation	$ -	$ 294,000	$ 294,000	$ -
		Tutor Perini Corporation	$ -	$ 4,875	$ 4,875	$ -
		Coachella Valley Unified School District	$ -	$ -	$ -	$ -
		The Conco Companies	$ -	$ 7,000	$ 3,500	$ 3,500
		Transcorp Logistics, Inc.	$ -	$ 7,250	$ 7,250	$ -
		Calwater Drilling	$ -	$ 28,125	$ 28,125	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Diesel	Diesel Fleet	The Complete Logistics Company, LLC	$ -	$ 600,375	$ 600,375	$ -
		TDW Construction Inc.	$ -	$ 8,250	$ 8,250	$ -
		Tutor Perini and O & G Industries	$ -	$ -	$ -	$ -
		A Ruiz Construction	$ -	$ 15,000	$ 15,000	$ -
		Anheuser Busch	$ -	$ 500,000	$ 250,000	$ 250,000
		DIII Transport	$ -	$ 2,100	$ 2,100	$ -
		Kings River Trucking	$ -	$ 2,000	$ 2,000	$ -
		Tyson Foods, Inc.	$ -	$ 169,500	$ 84,750	$ 84,750
		Supremas Inc.	$ -	$ 12,000	$ 12,000	$ -
		Christina Navarro		$ 4,000	$ 4,000	$ -
		Anastacio Navarro Jr. aka AJ Contractor Labor Services		$ 8,500	$ 8,500	$ -
		Classic Refrigeration Lines, LLC		$ 3,000	$ 3,000	$ -
		Adam Brothers Farming Inc.		$ 25,000	$ 25,000	$ -

Appendix H

2018 Enforcement Settlement Agreements (Cont'd)

Program Category	Subprograms	Company Name	Total Assessed Judgement	Total Assessed Settlement	Amount Assessed to ARB	Amount to AB 1071 SEP
Diesel	Ports and Marine	Hsin Chien Marine Company, Ltd.	$ -	$ 52,500	$ 52,500	$ -
		JP Alliance Ship Management Co. Inc.	$ -	$ 10,000	$ 10,000	$ -
		MSC Mediterranean Shipping Company S.A.	$ -	$ 350,000	$ 350,000	$ -
		Navios Ship Management Inc.	$ -	$ 7,500	$ 7,500	$ -
		Peter Döhle Shiffahrts-KG	$ -	$ 10,000	$ 10,000	$ -
		SM Line Corporation	$ -	$ 7,500	$ 7,500	$ -
		Wilhelmsen Ship Management	$ -	$ 5,250	$ 5 ,250	$ -
		Yang Ming Marine Transport Corporation	$ -	$ 7,500	$ 7,500	$ -
		ITS Technologies & Logistics, LLC	$ -	$ 6,375	$ 6,375	$ -
		MSC Mediterranean Shipping Company S.A.	$ -	$ 630,625	$ 630,625	$ -
		Total	**$ 300,000**	**$ 9,617,581**	**$ 8,286,032**	**$ 1,631,549**

Appendix I

2018 Diesel Programs Compliance Calculations

In February 2019, CARB staff estimated Truck and Bus Regulation compliance rates for all heavy vehicles with a gross vehicle weight rating (GVWR) greater than 26,000 pounds and lighter vehicles with a GVWR of 14,000 to 26,000 pounds. To calculate the compliance rate for heavy and light trucks, staff first looked at three types of vehicle registration: (1) vehicles registered with California Department of Motor Vehicles (DMV), (2) vehicles registered with the International Registration Plan (IRP) that are based in California, and (3) vehicles registered with IRP that are based in all other states. IRP is a registration reciprocity agreement between the contiguous United States and Canadian provinces, which provides apportioned payments of registration fees, based on the total distance operated in participating jurisdictions, to them.

CARB obtains data on vehicles registered with California DMV twice per year, and on vehicles registered with IRP every month. The vehicle registration data used for this analysis was from April 2018. The vehicle registration data includes the make and model of the vehicle, the vehicle model year, and information about the registered owner of each vehicle. For vehicles registered with California DMV, staff used Accuzip software to standardize the address of each registered owner. Standardized addresses allowed for the grouping of vehicles by registration address in order to determine fleet size. Once vehicles were grouped by address, fleet size was determined by counting the number of vehicles registered to a particular address.

Within each fleet, staff identified all heavy vehicles with a chassis model year 2007 and older, which are potentially noncompliant and all light vehicles with a chassis year 2000 and older. In general, vehicles are equipped with an engine that is one year older than the chassis model year. For example, a 2007 model year chassis is most likely equipped with a 2006 model year engine. All heavy vehicles with engines 2006 and older must be equipped with a DPF or be reported into CARB's Truck Regulation Upload, Compliance and Reporting System (TRUCRS) to use a flexibility option, extension, or exemption. All light vehicles with engines 1999 and older must be replaced with newer trucks or be reported in TRUCRS to use a flexibility option, extension, or exemption. The vehicle identification numbers (VIN) of any potentially noncompliant vehicles were cross-referenced with TRUCRS to determine whether that vehicle was reported compliant. For vehicles registered with IRP that are based in a state other than California, staff also identified all potentially noncompliant heavy and light vehicles and cross-referenced their VINs with TRUCRS to determine whether that vehicle was reported compliant.

Tables I-1 through I-6 below summarize, by vehicle registration type, vehicle counts per engine model year group corresponding to the Engine Model Year Compliance Schedule. Once the noncompliant vehicles were identified, staff compared these numbers with the overall population of vehicles to arrive at various compliance rates depending on fleet size and registration type. These results are summarized in Table I-7 in Appendix I, and show a range of compliance from 48 to 99%.

Appendix I

2018 Diesel Programs Compliance Calculations (Cont'd)

Table I-1

California Registered Heavier Diesel Truck Counts	
GVWR > 26,000 (excludes IRP[a])	
Pre-1995MY	16,748
MY1995 – MY1996	5,845
MY1997 – MY2000	16,795
MY2001 – MY2005	18,338
MY2006 – MY2007	11,901
MY2008 – MY2010	34,444
MY2011 +	65,913
Total All MY's	169,984
Pre-2008MY Total	69,627

[a]IRP data contain motor carrier registration information for all participating jurisdictions within the US

Table I-2

California IRP Registered Heavier Diesel Truck Counts	
GVWR > 26,000	
Pre-1995MY	455
MY1995 – MY1996	428
MY1997 – MY2000	2,785
MY2001 – MY2005	3,730
MY2006 – MY2007	3,284
MY2008 – MY2010	13,707
MY2011 +	49,550
Total All MY's	73,939
Pre-2008MY Total	10,682

Table I-3

IRP (excluding CA) Registered Heavier Diesel Truck Counts	
GVWR > 26,000	
Pre-1995MY	9,365
MY1995 – MY1996	7,812
MY1997 – MY2000	40,874
MY2001 – MY2005	76,957
MY2006 – MY2007	96,837
MY2008 – MY2010	66,766
MY2011 +	765,461
Total All MY's	1,064,072
Pre-2008MY Total	231,845

Table I-4

California Registered Light Diesel Truck Counts	
GVWR between 14,001 and 26,000	
Pre-1998 MY	14,518
1998	3,383
1999	6,622
2000	8,789
2001 - 2004	28,016
2005 - 2007	36,242
2008 - 2010	15,975
2011 +	53,606
Total All MY's	167,151
Pre-2001MY Total	33,312

Table I-5

California IRP Registered Light Diesel Truck Counts	
GVWR between 14,001 and 26,000	
Pre-1998 MY	39
1998	11
1999	26
2000	29
2001 - 2004	145
2005 - 2007	256
2008 - 2010	146
2011 +	1,019
Total All MY's	1,671
Pre-2001MY Total	105

Table I-6

IRP (excluding CA) Registered Light Diesel Truck Counts	
GVWR between 14,001 and 26,000	
Pre-1998 MY	400
1998	188
1999	294
2000	376
2001 - 2004	1,589
2005 - 2007	3,694
2008 - 2010	2,967
2011 +	53,862
Total All MY's	63,370
Pre-2001MY Total	1,258

Appendix I

2018 Diesel Programs Compliance Calculations (Cont'd)

Table I-7 Truck Compliance Rates

	Total Heavies				Total Lights[c]			
Reg. Type	**All Model Years**	**Pre 2008**	**Pre 2008 Non-Compliant**	**Compliance Rate**	**All Model Years**	**Pre 2001**	**Pre 2001 Non-Compliant**	**Compliance Rate**
CA Reg. Fleet Size 1-3	59,658	29,898	21,453	64%	80,081	22,575	21,770	73%
CA Reg. Fleet Size 4-20	47,063	22,170	14,204	70%	41,039	7,048	6,264	85%
CA Reg. Fleet Size 21-100	28,440	10,208	4,817	83%	15,676	1,785	1,569	90%
CA Reg. Fleet Size > 100	34,823	7,351	2,846	92%	30,355	1,904	1,811	94%
CA Reg. In-State Totals	**169,984**	**69,627**	**43,320**	**75%**	**167,151**	**33,312**	**31,414**	**81%**
CA IRP Fleet Size 1-3	28,237	5,170	4,113	85%	426	22	21	95%
CA IRP Fleet Size 4-20	24,191	3,056	2,118	91%	856	53	50	94%
CA IRP Fleet Size 21-100	14,134	1,551	732	95%	315	16	15	95%
CA IRP Fleet Size > 100	7,377	905	711	90%	74	14	14	81%
CA IRP Totals	**73,939**	**10,682**	**7,674**	**90%**	**1,671**	**105**	**100**	**94%**
OS IRP Fleet Size 1-3	100,841	52,989	52,680	48%	2,844	223	222	92%
OS IRP Fleet Size 4-20	94,276	35,234	34,911	63%	2,974	267	265	91%
OS IRP Fleet Size 21-100	140,623	37,284	36,923	74%	3,957	239	239	94%
OS IRP Fleet Size > 100	728,332	106,338	104,939	86%	53,595	529	528	99%
OS IRP Totals	**1,064,072**	**231,845**	**229,453**	**78%**	**63,370**	**1,258**	**1,254**	**98%**
Total CA In State and CA IRP	**243,923**	**80,309**	**50,994**	**79%**	**168,822**	**33,417**	**31,514**	**81%**
Grand Totals	**1,307,995**	**312,154**	**280,447**	**79%**	**232,192**	**34,675**	**32,768**	**86%**

[c] Refers to trucks with GVWR between 14,001 and 26,000

Appendix J

Matrix of Regulations and Corresponding Penalties

Item #	Regulation or Program CA *Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018				Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
1	**Aerosol Coating Products** Title 17, California Code of Regulations (CCR), sections 94520- 94528 https://arb.ca.gov/enf/consprod.htm	**Excess Ozone**		**Label**		**$5,000 to $10,000 per violation per day, Cal. Health & Safety Code (HSC), §§ 42400, 42402**
		$12,000/ton (1 case)		**$750/day (1 case)**		
2	**Aftermarket Parts** *Title 13, CCR, sections 1900 et. seq., 2030-2031, 2047-2048, 2200-2207, 2220-2225* *California Vehicle Code (VC), section 27156* http://www.arb.ca.gov/msprog/aftermkt/aftermkt.htm	**Certification**				**$37,500 per action, HSC § 43016**
		$221-$2,967/part (35 cases)				
3	**Antiperspirants and Deodorants** Title 17, CCR, sections 94500-94506.5 https://arb.ca.gov/enf/consprod.htm	**No penalties assessed during this period.**				**$5,000 to $10,000 per violation per day, HSC §§ 42400, 42402**
4	**Asbestos (ATCM) (HSC 39658(b))** Title 40, Code of Federal Regulations (CFR), Part 61, Subpart M http://www.arb.ca.gov/enf/asbestos/asbestos.htm	**Failure to Notify**	**Failure to Inspect**	**Asbestos Emissions**		**$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675; or up to $1,000,000 and one year in jail per violation per day possible where willful and intentional results in harm/death, HSC § 42400.3**
		$500-$1,363/day (11 cases)	**$1,363-$5,000/day (4 cases)**	**$25,000/day (1 case)**		
5	**Automotive Refrigerant, Small Containers** *Title 17, CCR, sections 95360-95370* https://www.arb.ca.gov/cc/hfc-mac/hfcdiy/hfcdiy.htm	**No penalties assessed during this period.**				**$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402**
6	**Cap and Trade** **Title 17, CCR, sections 95800 et. seq.** https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm	**Lack of Compliance Instruments**	**Disclosure Violations**	**No Account Representatives**	**Auction Rule Violation**	**$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402**
		$100/instrument (1 case)	**$10,000-$35,000/incident (1 case)**	**$1,605/day (1 case)**	**$25,000/ incident (1 case)**	
7	**Cargo Handling Equipment** Title 13, CCR, section 2479 https://www.arb.ca.gov/ports/cargo/cargo.htm	**Failure to Meet In-use Performance Requirements**				**1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016**
		$375-$21,875/piece of equipment (11 cases)[a]				
8	**Cargo Tank Vapor Recovery** *Title 17, CCR, section 94014* https://www.arb.ca.gov/ports/cargo/cargo.htm	**Failure to Meet Pressure Performance Requirements**				**$5,000 to $10,000 per violation per day, HSC §§ 42400, 42402**
		$500-$2,500/non-compliant cargo tank (55 cases)				

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program CA *Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018						Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
9	**Commercial Harbor Craft** *Title 13, CCR, section 2299.5 and Title 17, CCR, section 93118.5* https://www.arb.ca.gov/ports/marinevess/harborcraft.htm	No penalties assessed during this period.						$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016
10	**Composite Wood ATCM** *Title 17, CCR, sections 93120-93120.12* http://www.arb.ca.gov/toxics/compwood/compwood.htm	Failure to Comply with Emission Standards						$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402
		$27-$10,000/day (8 cases)						
11	**Consumer Products** *Title 17, CCR, sections 94507-94517* Penalties shown as per ton or per day depending on nature of penalty http://arb.ca.gov/enf/consprod.htm	Excess VOC	Excess Aromatic	Excess TAC	Global Warming Potential	Certification	Labeling	$5,000 to $10,000 per violation per day, HSC §§ 39674, 42400, 42402
		$3,512-$70,588/ton (118 cases)	No per ton penalties assessed during this period	$4,391-$45,021 /ton (10 cases)	$32,967/ton HFC134a (1 case)	$9,750 /violation (1 case)	No per ton penalties assessed during this period	
		$560-$4,500/day (56 cases)	$1,000/day (1 case)	No per day penalties assessed during this period	No per day penalties assessed during this period	$1,000/day (17 settled cases)	$667-$1,000/day (12 cases)	
12	**Consumer Products, Alternative Control Plan** *Title 17, CCR, sections 94540-94555* https://www.arb.ca.gov/consprod/regact/acp/acp.htm	No penalties assessed during this period.						$5,000 to $10,000 per violation per day, HSC §§ 42400, 42402
13	**Diesel Emission Control System, Verified** *Title 13, CCR, sections 2706(g), 2707(c), and 2709* http://www.arb.ca.gov/diesel/verdev/verdev.htm	Selling Non- Unit		Offering for Sale Non-Verified Unit		Installing Without Authorization		$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016
		$369-$5,000/unit (7 cases)		$50-$1,000/unit (6 cases)		$550-$5,000/unit (2 cases)		

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

<table>
<tr><th rowspan="2">Item #</th><th rowspan="2">Regulation or Program
CA Regulatory or Statutory Code
Program Internet Site</th><th colspan="5">Minimum and Maximum Penalty Assessed Between January 2014 and December 2018</th><th rowspan="2">Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal)
CA Health and Safety Code Reference</th></tr>
<tr><td colspan="3">Trucks</td><td>Rail Yards</td><td></td></tr>
<tr><td rowspan="2">14</td><td rowspan="2">Drayage Trucks
Title 13, CCR, section 2027
http://www.arb.ca.gov/msprog/onroad/porttruck/porttruck.htm</td><td>Failure to Report</td><td>Failure to Meet In-Use Performance Requirements</td><td>Submitting False Data</td><td>Failure to Submit Quarterly Report</td><td>Dispatching Non-Compliant Trucks</td><td rowspan="2">$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016</td></tr>
<tr><td>$100-$800 /vehicle (33 cases)</td><td>$200-$1,800 /violation (228 cases)</td><td>$300-$1,300 /violation (4 cases)</td><td>$7,300-$10,000 /quarterly report (2 cases)</td><td>$30-$100 /dispatch (10 cases)</td></tr>
<tr><td rowspan="2">15</td><td rowspan="2">Dry Cleaner (ATCM)
Title 17, CCR, sections 93109 and 93110
http://www.arb.ca.gov/toxics/dryclean/dryclean.htm</td><td colspan="3">Submitting Inaccurate Report</td><td colspan="2">Failure to Pay Fees</td><td rowspan="2">$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402</td></tr>
<tr><td colspan="3">$357/violation (1 case)</td><td colspan="2">$357/violation (1 case)</td></tr>
<tr><td rowspan="2">16</td><td rowspan="2">Engine Certification Label Program, On-Road Heavy-Duty Vehicle
Title 13, CCR, sections 2180-2189
http://www.arb.ca.gov/enf/hdvip/hdvip.htm</td><td colspan="5">Missing or Illegible Emission Control Label (ECL)</td><td rowspan="2">$300 first citation, additional $800 after 45 days, additional $1,800 for 2nd citation in 12 months, HSC § 44011.6</td></tr>
<tr><td colspan="5">$66-$1,800/label (1,660 citations)</td></tr>
<tr><td>17</td><td>Fleet Tampering / Non-conforming
HSC, section 43008.6
http://www.arb.ca.gov/enf/othermbl.htm</td><td colspan="5">$500-$1,500/ vehicle (8 cases)</td><td>$1,500 per violation, HSC § 43008.6</td></tr>
<tr><td rowspan="2">18</td><td rowspan="2">Fuel Containers and Spouts, Portable
Title 13, CCR, sections 2467-2467.9
https://www.arb.ca.gov/consprod/fuel-containers/pfc/pfc.htm</td><td colspan="5">Certification</td><td rowspan="2">$500 per portable fuel container or spout, HSC § 43016</td></tr>
<tr><td colspan="5">$0.50-$36/unit (5 cases)</td></tr>
<tr><td>19</td><td>Fuel Distributor Certification (Motor Vehicle Fuel)
HSC, section 43026
http://www.arb.ca.gov/enf/fuels/distcert.htm</td><td colspan="5">No penalties assessed during this period.</td><td>$1,000 to $10,000 per day, HSC § 43026</td></tr>
</table>

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program *CA Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018				Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
20	**Fuels** *Title 13, CCR, sections 2250-2259; 2260-2276; 2280-2285; 2290-2293,5; and 2299-2299.5* http://www.arb.ca.gov/fuels/fuels.htm	Fuels				$25,000, $35,000, $50,000, $250,000 per violation per day, HSC § 43027; or $1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016, 43020
		$2,500-$25,000/day (32 cases)				
21	**Heavy-Duty Vehicle Inspection Program (HDVIP)** *Title 13, CCR, sections 2180-2189* http://www.arb.ca.gov/enf/hdvip/hdvip.htm		Exceeding Opacity Limit	Tampering	Refusal to Submit to Inspection	$300 first citation, additional $500 after 45 days, additional $1,800 for 2nd citation in 12 months, HSC § 44011.6
		1st Citation	$300/violation (48 citations)	$300/violation (284 citations)	$800-$1300/violation (13 citations)	
		No Corrective Action Taken Within 45 Days	$500-$800/ violation (33 citations)	$800/violation (91 citations)	-	
		2nd Citation	$1,800/violation (1 citation)	$1,800/violation (1 citation)	-	
22	**Idling, Commercial Vehicle** *Title 13, CCR, section 2485* https://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm	Idling Longer than 5 Minutes				$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016
		$100 - $1,000/violation (1,266 cases)				
23	**Idling, School Bus** *Title 13, CCR, section 2480* http://www.arb.ca.gov/toxics/sbidling/sbidling.htm	No penalties assessed during this period.				$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402
24	**Indoor Air Cleaning Devices** *Title 17, CCR, sections 94800-94810* https://www.arb.ca.gov/research/indoor/aircleaners/certified.htm	Certification				$5,000 to $10,000 per violation per day, HSC §§ 42400, 42402
		$1,000/day (2 cases)				

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program *CA Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018			Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
25	**Landfill Methane Rule (LMR)** Title 17, CCR, sections 95460-95476 http://www.arb.ca.gov/cc/landfills/landfills.htm	Failure to Report			$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402
		$753/day (1 case)			
26	**Large Spark Ignited Engine (LSI) Fleet Requirements** *Title 13, CCR, sections 2775-2775.2* http://www.arb.ca.gov/msprog/offroad/orspark/orspark.htm	No penalties assessed during this period.			$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC§43016
27	**Low Carbon Fuel Standard** *Title 17, CCR, sections 95480-95491* https://www.arb.ca.gov/fuels/lcfs/lcfs.htm	Compliance Report			$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402; or $25,000, $35,000, $50,000, $250,000 per day, HSC §§ 38580, 42402, 43027
		$195/deficit (1 case)	$7,500-$10,000/misreporting (3 cases)		
28	**Mandatory Reporting of Greenhouse Gas Emissions (MRR)** *Title 17, CCR, sections 95100 et. seq.* https://www.arb.ca.gov/cc/reporting/ghg-ver/ghg-ver.htm	Inaccurate MRR Report	Failure to Maintain Meter Accuracy	Inaccurate Fee Regulation Report	$5,000 to 10,000 per violation per day, HSC §§ 38580, 42400, 42402
		$400-$3,000/day (9 cases), $25,000/incident (1 case)	$75,000/incident (1 case)	$600-$1,500/day (4 cases)	
29	**Marine / Watercraft** *Title 13, CCR, sections 2440-2448* http://www.arb.ca.gov/msprog/offroad/recmarine/recmarine.htm	Certification			$37,500 per action, HSC §§ 43016, 43212
		$500/violation (8 cases)			
30	**Motor Vehicles / Engines Certification, New** *HSC, sections 43150-43154* http://www.arb.ca.gov/msprog/onroad/onroad.htm	Certification			$37,500 per action, HSC §§ 43016, 43212
		$500-$5,000/violation (94 cases)			

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program *CA Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018						Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
31	**Off-Highway Recreational Vehicles** *Title 13, CCR, sections 2410-2415* http://www.arb.ca.gov/msprog/offroad/orrec/orrec.htm	Certification $500-$2,500/vehicle (4 cases)						$37,500 per action, HSC §§ 43016, 43150, 43154, 43212
32	**Off-Road Engine Certification, Compression Ignition** *Title 13, CCR, sections 2420-2427* http://www.arb.ca.gov/msprog/offroad/orcomp/orcomp.htm	Certification $250-$21,428/vehicle (12 cases)						$37,500 per action, HSC §§ 43016, 43154, 43212
33	**Off-Road Engine Certification, Large (LSI)** *Title 13, CCR, sections 2430-2439* https://arb.ca.gov/msprog/offroad/lsi/lsictp/lsictp.htm	Certification $375 (1 case)						$37,500 per action, HSC §§ 43016, 43212
34	**Off Road Engine Certification, Small (SORE)** *Title 13, CCR, sections 2400-2409* https://www.arb.ca.gov/msprog/offroad/sore/sore.htm	Certification $34-$500/violation (11 cases)						$500 per unit, HSC §§ 43016, 43212
35	**Off-Road Equipment, In-Use** *Title 13, CCR, section 2449* https://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm	Adding Illegal Engine	No ROAR	Failure to Report	Submitting False Data	No EIN	Misreporting	$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC§43016
		$200-$2,000/ violation (126 cases)[b]	$375-$1,000/ violation (138 cases) [b]	$62.50-$800/ violation (482 cases) [b]	$300-$500/ violation (10 cases) [b]	$62.50-$600/ violation (409 cases) [b]	$300/violation (24 cases) [b]	
36	**On-Board Diagnostics, On-Road Heavy-Duty Vehicle** *Title 13, CCR, sections 1971.1 and 1971.5* https://www.arb.ca.gov/msprog/obdprog/hdobdreg.htm	No penalties assessed during this period.						$37,500 per action, HSC §§ 43016, 43154, 43212

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program *CA Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018			Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
37	**On-Board Diagnostics, On-Road Light-Duty Vehicle** Title 13, CCR, sections 1968.2 and 1968.5 https://www.arb.ca.gov/msprog/obdprog/obdprog.htm	**Failure to Meet Certification Requirements**			**$37,500 per action, HSC §§ 43016, 43154, 43212**
		$6.25-$1,800/vehicle (2 cases)			
38	**On-Road New Diesel Engine Emission Standards Certification** *Title 13, CCR, sections 1956.8, 1971, and 1971.1* http://www.arb.ca.gov/msprog/onroad/cert/cert.php	**No penalties assessed during this period.**			**$37,500 per action, HSC §§ 43154, 43212**
39	**Outboard Marine Tanks and Components, Portable** *Title 13, CCR, sections 2190-2194* https://www.arb.ca.gov/consprod/fuel-containers/omt/omt.htm	**No penalties assessed during this period.**			**$37,500 per action, HSC §§ 43016, 43212**
40	**Periodic Smoke Inspection Program (PSIP)** *Title 13, CCR, sections 2190-2194* http://www.arb.ca.gov/enf/hdvip/hdvip.htm	**Failure to Perform Test / Failed Test**			**$37,500 per action, HSC § 43016**
		$42-$800/violation (332 cases)			
41	**Public Agencies and Utilities Fleets** *Title 13, CCR, sections 2023-2023.4* http://www.arb.ca.gov/msprog/publicfleets/publicfleets.htm	**Failure to Meet In-use Performance Requirements**			**$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016**
		$1,000/violation (2 cases)			
42	**Public Transit Bus Fleets** **Title 13, CCR, sections 2023-2023.4** https://www.arb.ca.gov/regact/bus02/bus02.htm	**Failure to Report**			**$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016**
		$50/day (1 case)			
43	**Refrigerant Management Program (RMP)** *Title 17, CCR, sections 95460-95476* https://www.arb.ca.gov/cc/rmp/rmp.htm	**Failure to Register / Report**	**Automatic Leak Detection System**	**Failure to Inspect**	**$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402**
		$115-$600/day (11 cases)	**$152-$411/day (3 cases)**	**$152-$600/day (5 cases)**	
		$150-$1,800/violation per day (101 cases)			

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program *CA Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018					Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
44	**Solid Waste Collection Vehicles** *Title 13, CCR, sections 2020, 2021, 2021.1, and 2021.2* https://www.arb.ca.gov/msprog/swcv/swcv.htm	Failure to Meet In-use Performance Requirements					$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016
		$150-$1,800/violation per day (107 cases)					
45	**Sulfur Hexafluoride (SF6) Reduction** *Title 17, CCR, sections 95340-95346, 95352-95358* http://www.arb.ca.gov/cc/sf6elec/sf6elec.htm	SF6 Emission Rate	Late/Inaccurate Report	Possessing SF6 on or after January 1, 2011, and Intentionally emitting SF6 to the atmosphere			$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402
		$136.99-$700/day (8 cases)	$5,000/violation (1 case)	$10,000/day (1 case)			
46	**Tractor and Trailer Greenhouse Gas Regulation** *Title 17, CCR, section 95300* http://www.arb.ca.gov/cc/hdghg/hdghg.htm	Failure to Meet In-use Performance Requirements					$5,000 to $10,000 per violation per day, HSC §§ 38580, 42400, 42402
		$1,000-$1,800/ violation (200 cases)					
47	**Transport Refrigeration Units** *Title 13, CCR, section 2477* https://www.arb.ca.gov/diesel/tru/tru.htm	Failure to Meet In-use Performance Requirements	No IDN	Failure to Register	Submitting False Data		$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402
		$225-$3,000/unit	$100-$1,800/label	$200-$1,300/unit	$300-$500/violation		
		(1,779 cases) [c]	(394 cases) [c]	(579 cases) [c]	(23 cases) [c]		
48	**Trucks and Buses, In-Use Diesel** *Title 13, CCR, section 2025* http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm	Failure to Meet In-use Performance Requirements	Failure to Provide Sales Disclosure	Failure to Report / Misreporting	Failure to Verify Compliance of Hired Vehicle/Fleet	Hiring Non-Compliant Vehicle/Fleet	$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016
		$100-$20,000/vehicle	$225-300/violation	$75-$1,375/violation	$100-$1,396/fleet	$1,000-$10,000/fleet	
		(4,199 cases)	(26 cases)	(171 cases)	(12 cases)	(11 cases)	

Appendix J

Matrix of Regulations and Corresponding Penalties (Cont'd)

Item #	Regulation or Program *CA Regulatory or Statutory Code* **Program Internet Site**	Minimum and Maximum Penalty Assessed Between January 2014 and December 2018	Applicable Maximum Penalties (Strict Liability, Willful, Intentional, & Criminal) *CA Health and Safety Code Reference*
49	**Vessels, At-Berth for Auxiliary Engines ATCM (Shore Power)** *Title 17, CCR, sections 93118.3 et. seq.* https://www.arb.ca.gov/ports/shorepower/shorepower.htm	**Failure to Meet In-Use Operational Requirements** **$250/violation (1 case)**	**$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402**
50	**Vessel (Ocean-Going) Incineration ATCM** *Title 17, CCR, section 93119* https://www.arb.ca.gov/ports/shipincin/shipincin.htm	**No penalties assessed during this period.**	**$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402**
51	**Vessels, Fuel Sulfur and Other Operational Requirements for Ocean-Going** *Title 13, CCR, section 2299.2 and Title 17, CCR, section 93118.2* https://www.arb.ca.gov/ports/marinevess/ogv.htm	**Failure to Properly Complete Operational Requirements** **$1,000-$53,000/day** **(94 cases)**	**$1,000 to $10,000 per violation per day, HSC §§ 39674, 39675, 42400, 42402; or $37,500 per action, HSC § 43016**