

State of California
AIR RESOURCES BOARD

**PUBLIC HEARING TO CONSIDER THE PROPOSED AMENDMENTS TO THE
ON-ROAD HEAVY-DUTY DIESEL-FUELED RESIDENTIAL AND COMMERCIAL
SOLID WASTE COLLECTION VEHICLES REGULATION TO INCLUDE HEAVY
CRANES**

STAFF REPORT: INITIAL STATEMENT OF REASONS

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I. EXECUTIVE SUMMARY

Staff is proposing two distinct changes to the Solid Waste Collection Vehicle (SWCV) regulation to ensure that compliant SWCVs do not experience delays in California Department of Motor Vehicles (DMV) registration due to recent changes in California law and to provide a feasible compliance option for specialized cranes.

Beginning January 1, 2020, Senate Bill 1, the Road Repair and Accountability Act (SB 1), requires the DMV to only register diesel vehicles that are compliant with CARB Regulation to Reduce Particulate Matter and Criteria Pollutant Emissions from In-Use Heavy-Duty Diesel Vehicles (Truck and Bus regulation). Vehicles subject to the SWCV regulation are exempt from the Truck and Bus Regulation and therefore from the new provisions of SB 1. However, the SWCV regulation does not have reporting requirements; therefore, the California Air Resources Board (Board or CARB) staff cannot distinguish vehicles subject to the SWCV regulation from vehicles subject to the Truck and Bus regulation, and so cannot identify SWCVs. This issue would potentially cause serious registration delays if not addressed.

The Board approved the Truck and Bus regulation in 2008. This regulation applies to nearly all privately or federally owned trucks and buses that operate annually in California and includes cranes. The rule requires vehicles to meet particulate matter (PM) and oxides of nitrogen (NOx) emissions requirements to achieve California's air quality goals. Fleet owners must transition from older higher emitting vehicles to newer lower emitting vehicles through a combination of PM filter retrofits and vehicle replacements from January 1, 2012 through January 1, 2023. The regulation included PM filter extensions that ended January 1, 2018, for vehicles that could not be retrofitted. The regulation was subsequently amended in 2010 and 2014. The 2014 amendments applied to a wide range of trucks and added a compliance option for heavy cranes. The option was unique to heavy cranes and required heavy crane fleets to upgrade to 2010 engines at a rate of 10 percent of the crane fleet each year starting in 2018. For the heavy cranes that could be equipped with PM filters, the regulation did not require further upgrades. The 2014 amendments to the Truck and Bus regulation were challenged in court on procedural grounds and are being rescinded.

Diesel-fueled on-road single engine heavy cranes (heavy cranes) (those with a gross vehicle weight greater than 54,000 pounds) face unique circumstances and challenges to be retrofitted or replaced as required under the Truck and Bus regulation. Prior to 2014, CARB staff worked closely with crane operators, crane manufacturers, and other organizations to investigate and collect data on specialized crane operations and ultimately determined that retrofitting or repowering many specialized cranes was not feasible for most heavy cranes. Thus CARB granted heavy crane owners annual PM filter extensions under the Truck and Bus regulation, until the extensions ended January 1, 2018. Beginning January 1, 2018, all heavy crane operators were operating under the expectation that 10 percent of their cranes needed to have 2010 engines and the cranes that were already equipped with PM filters would not need to be replaced in the future.

Today there are 683 heavy cranes in California where 25 percent have 2010 or newer engines. Based on the 2014 amendments being rescinded, 254 heavy cranes (37 percent) that could not be retrofitted with a PM filter will now need to be replaced or parked immediately. It is impractical to replace these cranes in a matter of months given the fact that cranes are highly specialized equipment that are only available from a handful of manufacturers worldwide. They also have high capital costs and cannot be rented or leased on a temporary basis. Parking nearly 40 percent of all heavy cranes immediately would be disruptive for crane fleets, businesses who rely on crane services, and would result in ripple effects beyond the crane fleets themselves.

The proposed amendments to the SWCV regulation include two distinct components. First, the proposal would add a reporting requirement for owners of SWCVs to improve enforceability and to avoid delays with California DMV registration starting in 2020. Second, the scope of the SWCV regulation would be expanded to include heavy cranes with a newly-added phase in schedule that mirrors the amended 2014 requirements. The proposed amendments would allow sufficient time for crane operators to upgrade equipment without disrupting business operations while continuing to meet crane certification safety standards and continuing to make progress in reducing emissions to protect public health. This option would recognize the limited ability to safely upgrade existing cranes and the high cost of replacing this specialized equipment.

There are no emissions impacts associated with the proposed reporting requirements for SWCVs. The proposed amendments for heavy cranes would result in a projected temporary delay in some emission benefits when compared to emission benefits that may have been achieved absent the proposed amendments. However, emissions of diesel PM, NO_x, and other criteria pollutants will still continue to drop from today's levels as a result of the regulation with the proposed amendments. The projected emissions compared to the 2011 Truck and Bus regulation requirements will ultimately result in the same projected air quality benefits for PM by 2027, and will continue to reduce NO_x substantially, but is not expected to reach the same NO_x emissions level by 2027.

Concomitantly, when compared to the requirements of the 2011 Truck and Bus regulation, compliance costs would be reduced for heavy crane fleet owners because they will be able to defer heavy crane purchases and would have more time to raise the capital needed (CARB, 2010). The proposed phase-in compliance schedule for heavy cranes would require heavy cranes that could not be retrofitted, to upgrade to 2010 engines from 2019 to 2027 and smooths out the compliance costs over several years with a total savings of about \$59 million in compliance costs for the analysis period of 2019 to 2032. The amendments affecting SWCVs will slightly increase administrative reporting costs for SWCVs since there currently is no existing reporting requirement. However, these costs cannot be avoided because information would still need to be submitted to either CARB or DMV for the trucks to be registered with the DMV.

CARB staff evaluated alternatives to the proposed amendments. The alternatives considered included no action, exempting all heavy cranes from existing clean-up requirements, and increasing the mileage limitation for the low use vehicle exemption.

None of the alternatives considered were found to be more effective in carrying out the purpose of the proposed amendments or to be as effective as or less burdensome to affected businesses than the proposal.

II. INTRODUCTION AND BACKGROUND

In this chapter, CARB staff provides a brief history of the existing regulations affecting SWCVs and cranes. Staff also describe proposed amendments to address recent changes in legislation affecting diesel vehicle registration and in changes in regulatory compliance requirements for heavy crane owners. The proposed amendments have two distinct components. They would add a reporting requirement for SWCVs and would introduce a new compliance option for heavy cranes to phase-in cleaner equipment over an extended period.

A. PURPOSE OF AMENDMENTS

The proposed amendments for SWCV are primarily to address recent changes in California law that could prevent compliant SWCVs from registering with the DMV. The new law only allow certain model year trucks to be registered with the DMV starting in 2020 to ensure compliance with the Truck and Bus regulation. SWCVs are not subject to the Truck and Bus regulation and therefore need to be clearly identified to avoid unintended registration delays beginning in 2020. The proposed amendments would clarify the definition of vehicles subject to the SWCV regulation and would require reporting for all fleets that own or operate pre-2010 model year diesel engines to improve reporting and enforceability. The text of the proposed regulation is in Appendix A.

Heavy cranes are subject to the Truck and Bus regulation but have unique circumstances compared to other trucks. Certain specialized cranes cannot be safely retrofitted and must either be retired or replaced to comply. These cranes were granted PM filter extensions that expired by January 1, 2018. The 2014 amendments to the Truck and Bus regulation applied to a wide range of trucks and added a compliance option for heavy cranes in recognition of these special circumstances. However, the amendments made in 2014 were challenged in court on procedural grounds and are being rescinded at the end of 2018.

The proposed compliance option for heavy cranes would include new phase-in requirements for specialized single engine heavy cranes to reduce particulate matter (PM) and oxides of nitrogen emissions. The proposal would allow sufficient time for operators to upgrade equipment without disrupting business operations while meeting federal and state safety standards and protecting public health. This option would recognize the limited ability to safely retrofit existing cranes and the high cost of replacing this specialized equipment.

B. HISTORY AND PREVIOUS AMENDMENTS

The SWCV regulation was considered by CARB in September 2003 and became effective under California law on July 20, 2004. The regulation applies to diesel trucks that haul waste for a fee that have a gross vehicle weight rating (GVWR) greater than 14,000 pounds and have 1960 to 2006 model year diesel engines. As of

January 1, 2010, all diesel fueled SWCVs were required to be equipped with the best available control technology to reduce diesel PM. Many fleets also switched to alternative fuels. The SWCV regulation was one of several early regulations adopted by CARB to reduce adverse health effects from PM and smog-forming emissions from trucks operating in communities (CARB, 2003).

The Truck and Bus regulation was initially approved on December 12, 2008, by CARB. The regulation applies to nearly one million diesel vehicles with a manufacturer's GVWR greater than 14,000 pounds that annually operate in California. This regulation was designed to reduce exposure to diesel PM and to provide NOx reductions to help achieve attainment with ambient PM2.5 and ozone air quality standards and applies to vehicles that were not already subject to a similar in-use regulation. On December 17, 2010, the Board approved amendments that restructured the regulation in light of the economic recession that had effectively reduced emissions from regulated trucks and buses through lower vehicle activity. Those amendments became effective on December 14, 2011, and a summary of the existing regulation is in Appendix B. Since that time, the United States Environmental Protection Agency (U.S. EPA) approved the Truck and Bus regulation as part of California's Air Quality Plan to meet federal air quality standards (SIP). The regulation was subsequently amended in 2014, but those changes were challenged and are being rescinded in 2018.

The regulation require trucks and buses to meet PM filter requirements starting January 1, 2012, and to upgrade to 2010 model year or newer engines (to reduce NOx emissions) starting January 1, 2015. based on the engine model year. The regulation also provides a variety of flexibility options tailored to fleets operating low use vehicles or for fleets operating in selected vocations. Fleets that chose to use a flexibility option and do not meet the model year schedule requirements must be reported to CARB each year to demonstrate compliance (CARB, 2014).

In 2017, California passed SB 1, which among various provisions, would require the DMV to only allow diesel vehicles that are compliant with the Truck and Bus regulation to be registered beginning January 1, 2020. CARB staff have been working closely with the DMV to implement the new requirements and have determined that vehicles subject to the SWCV regulation will need CARB to identify them as exempt from the Truck and Bus regulation.

C. LEGAL AUTHORITY

In 1988, the California legislature enacted the California Clean Air Act (CCAA), which declared that attainment of state ambient air quality standards is necessary to promote and protect public health, particularly the health of children, the elderly, and those with respiratory diseases. The legislature also directed that these standards be attained by the earliest practicable date.

The CCAA, as codified in California Health and Safety Code sections 39001, 39002, 39003, 39500, 39600, 39601, 39602.5, 39607, 39658, 43000, 43011, 43013, 43018,

43101, 43102, 43104, 43150, 43151, and 43600, grants CARB authority to regulate on-road sources of emissions. On-road emissions sources include SWCV vehicles and cranes and other similar types of equipment. CARB is therefore authorized to regulate SWCV and crane equipment as a separate mobile source category and as an emission source.

III. STATEMENT OF REASONS

A. THE PROBLEM THE PROPOSAL IS INTENDED TO ADDRESS

The proposal will address two distinct issues. First, State law intended to improve enforcement of the Truck and Bus regulation may inadvertently prevent compliant SWCVs from registering to operate in the State. Second, heavy cranes are specialized vehicles that cannot be easily retrofitted or replaced like other trucks that are fairly common and can easily be purchased used, rented or leased. The 2014 amendments to the Truck and Bus regulation applied to a wide range of trucks and added a compliance option for heavy cranes in recognition of these special circumstances. However, the amendments were challenged in court and are now being rescinded.

Recent changes to California Law in SB 1 require the DMV to only register compliant vehicles that are subject to the Truck and Bus regulation starting on January 1, 2020. The DMV will not register medium and heavy duty diesel vehicles of a certain model year unless CARB provides information to show the vehicle is complying with the Truck and Bus regulation or that the truck is not subject to the Truck and Bus regulation.

The SWCV regulation does not have a reporting requirement so staff does not have the information necessary to provide to the DMV to show the truck is compliant with the SWCV regulation. The lack of information could result in unintended registration delays. Adding a reporting requirement for SWCVs with 1960 to 2006 model year engines would ensure CARB has the information needed to identify vehicles subject to the SWCV regulation and would simplify the registration process with DMV.

The scope of the SWCV regulation as described in the existing regulation, applies to vehicles that haul solid waste for a fee. The definition is based on how a vehicle is used and is not entirely clear on what requirements apply if the same vehicle is used for another purpose intermittently or frequently. The only truck body types that have been retrofitted to comply with the SWCV regulation have been compactor trucks and garbage roll-off trucks. Changing the scope to directly identify these two body types would be more clear what requirement the truck must meet and would remove ambiguity with the use based definition.

Heavy cranes were initially subject to the Truck and Bus regulation with the same requirements as other trucks. However, these cranes have strict Occupational Safety and Health Administration (OSHA) requirements that limit the ability to retrofit or repower existing vehicles. Modifications to these specialized cranes require the manufacturer or a registered professional engineer who is familiar with the equipment to review and approve any modifications to the crane, and may require changes to load charts, procedures, instruction manuals and other items. Heavy cranes are highly specialized equipment; they are not available for rent or on a temporary basis, and are only available for purchase from a handful of manufacturers worldwide with long lead times. Most could not be retrofitted and were granted PM filter extensions that expired by January 1, 2018. Additionally, the cost of replacing this specialized equipment is

significantly greater than most other vehicles subject to the Truck and Bus regulation, typically several hundred thousand dollars.

CARB staff previously recognized the unique issues that cranes face and in 2014 the Board approved amendments that included a compliance option for heavy cranes (CARB, 2014). All heavy crane owners were operating under the same compliance expectations until the challenges to the 2014 amendments were decided in a court case in 2018 and are being rescinded. All heavy crane operators were operating under the expectation that 10 percent of their cranes needed to have 2010 engines in 2018 and any crane that was equipped with a PM filter prior to 2018 would not need to be replaced.

Today, there are 683 heavy cranes in California where 25 percent have 2010 or newer engines. Based on the 2014 amendments being rescinded, 254 heavy cranes (37 percent of the crane fleet) that could not be retrofitted with a PM filter would now need to be replaced or parked immediately. All remaining cranes will need to be upgraded to 2010 engines from 2020 to 2023. Crane fleets will need to upgrade too many cranes at the same time and cannot reasonably come into compliance right away. The only realistic option would be to park existing cranes immediately which would be disruptive for those needing crane services, would adversely affect crane operators and other businesses in California, and could not reasonably achieve the required emissions reductions in this compressed timeline.

IV. BENEFITS ANTICIPATED FROM THE REGULATORY ACTION, INCLUDING THE BENEFITS OR GOALS PROVIDED IN THE AUTHORIZING STATUTE

The anticipated benefits from the regulatory action include avoiding delays with DMV registration starting in 2020; improving enforcement effectiveness; allowing sufficient time for operators to upgrade equipment without disrupting business operations, and protecting public health. Ultimately, the amendments will ensure a smooth reporting process and implement a feasible compliance option for heavy cranes that will help California continue to reduce emissions and protect public health. There are no expected nonmonetary benefits, such as worker safety, because of this rulemaking.

V. AIR QUALITY

This chapter describes how the proposed amendments continue to achieve needed emissions reductions, reduce localized risk from exposure to carcinogenic diesel PM, reduce impacts of diesel engine emissions on mortality and other health effects and meet SIP commitments to meet federal air quality standards. For purposes of determining the emissions impacts of the proposed amendments, the baseline assumes all cranes will comply with the 2011 Truck and Bus regulation requirements beginning in 2019. This represents a baseline to show the impacts of meeting the compliance requirement absent the amendments, but staff does not believe it is a feasible compliance path for heavy cranes.

A. NEED FOR EMISSIONS REDUCTIONS

Diesel PM as a component of ambient PM_{2.5} is a significant public health concern throughout the state. In August 1998, CARB identified particulate emissions from diesel-fueled engines as a toxic air contaminant. It is, by far, the largest contributor of known ambient air toxics cancer risk in California (Propper, R., et al., 2015).

Following the identification process, in September 2000, CARB approved the Diesel Risk Reduction Plan, paving the way for the development of control measures designed to reduce toxic diesel PM emissions. Through this plan, staff identified strategies including air toxics control measures and other regulations, to reduce statewide diesel emissions by 75 percent by 2010, and by 85 percent by 2020. The goal of each regulation is to make diesel engines as clean as possible to reduce PM emissions and their associated cancer risk. Failure to obtain substantial reductions in diesel PM from all diesel engines are inconsistent with meeting the goals of the Diesel Risk Reduction Plan. The proposed amendments represent the most expeditious reduction of diesel PM emissions for heavy cranes that is practical.

B. MEETING NATIONAL AMBIENT AIR QUALITY STANDARDS

U.S. EPA has established health protective National Ambient Air Quality Standards (NAAQS or standards) for a number of criteria pollutants, including ozone

and PM2.5. In 1979, U.S. EPA adopted a 1-hour ozone standard. In 1997, U.S. EPA adopted a set of PM2.5 standards, an annual and a 24-hour standard, plus an 8-hour ozone standard. U.S. EPA is required to periodically review the standards to ensure they are protective of public health. And as a result, based on more recent scientific information on the health impacts of ozone and particulate matter, U.S. EPA tightened the 24-hour PM2.5 standard in 2006, the 8-hour ozone standard in 2008 and 2015, and the annual PM2.5 standard in 2012.

States with areas that do not meet these standards must develop SIPs with enforceable measure to meet the standards by specific deadlines. Two regions in California—the South Coast Air Basin (South Coast) and the San Joaquin Valley Air Basin (San Joaquin Valley) are designated nonattainment for both PM2.5 and 8-hour ozone standards with attainment years through 2025 for PM2.5 and 2031 for 8-hour ozone. For the 1997 8-hour ozone standard, both regions are classified as Extreme with a 2023 attainment year.

In 2007 and 2008, the State adopted SIPs for the 1997 PM2.5 and 8-hour ozone standards for both South Coast and San Joaquin Valley. U.S. EPA approved the PM2.5 SIPs in 2011 and ozone SIPs in 2012 (U.S. EPA, 2011). In 2013, the State adopted South Coast and San Joaquin Valley SIPs for the 2006 24-hour PM2.5 standard and updated SIPs for the 1-hour ozone standard and U.S. EPA subsequently approved those SIPs. More recently, CARB submitted nine ozone SIPs for the 2008 8-hour ozone standard.

All of these SIPs, those U.S. EPA has already approved as well as those pending approval, rely on the emission reductions in each of the attainment years from the State's Truck and Bus regulation to meet the NAAQS.

C. IMPACT ON NAAQS ATTAINMENT IN SOUTH COAST AND SAN JOAQUIN VALLEY

U.S. EPA has approved California's SIPs for South Coast and San Joaquin Valley that rely on the emissions reductions from the Truck and Bus regulation. Staff has therefore designed the proposed amendments to maximize air quality benefits and satisfy the federally-enforceable SIP commitments for emissions reductions in these two regions while ensuring a feasible compliance method is available for specialized cranes that operate throughout the State. The proposed amendments result in as few changes as possible to a narrow population of vehicles to remain consistent with the approved SIPs and continues to provide the maximum feasible emissions reductions from heavy cranes in these two regions.

Projected statewide emissions in 2023 from the proposed amendments result in 0.34 tons per day fewer NOx emission benefits and 0.007 tons per day fewer PM2.5 emission benefits from heavy cranes but achieves nearly the same PM2.5 emissions reductions by 2027 when compared to the 2011 Truck and Bus regulation. For NOx, the proposed amendments result in 0.15 tons per day fewer emission benefits by 2027.

To put these results in context, the impacts affect less than 1 percent of the emissions and vehicles subject to the Truck and Bus regulation.

D. IMPACT ON PM MORTALITY

In the amendments adopted by the Board in 2010 and took effect in 2011, staff estimated that 3,500 premature deaths (2,700 to 4,400, 95 percent confidence interval) would be avoided between 2010 and 2025 by implementation of the amended regulation. The proposed amendments for heavy cranes also would have little impact on the overall emissions benefits achieved, and in fact would better ensure the anticipated reductions occur; therefore, the health impacts are not expected to change significantly and are less than 1 percent of the emissions impact when compared to the 2011 Truck and Bus regulation.

E. IMPACT ON LOCALIZED RISK

The proposed amendments continue to reduce PM emissions from cranes by the maximum feasible amount. The proposed amendments is limited to specialized heavy cranes due to their unique circumstances and limited options to reduce emissions already describes in Chapter II. The proposed amendments ensures that most cranes operating in California will have a PM filter by 2023 and all will have a PM filter by 2027. The proposed amendments remain consistent with the goals of the Diesel Risk Reduction Plan to achieve the maximum feasible PM reductions.

F. EMISSIONS INVENTORY

1. OVERVIEW

This chapter provides details of the emissions analysis conducted to assess the impact of the proposed amendments. Staff is proposing two distinct changes to the SWCV regulation to ensure that compliant SWCVs do not experience delays in DMV registration due to recent changes in California law and to provide a feasible compliance option for specialized cranes. This chapter will focus on the emissions impacts associated with the new compliance options proposed for these specialized cranes, referred to as heavy cranes.

The proposed compliance option for heavy cranes would include new phase-in requirements for specialized single engine heavy cranes to reduce PM and NOx emissions. The proposal would allow sufficient time for operators to upgrade equipment without disrupting business operations while meeting federal and state safety standards and protecting public health. This option would recognize the limited ability to safely retrofit existing cranes and the high cost of replacing this specialized equipment.

2. EMISSIONS INVENTORY METHODS

“Heavy Crane” means an on-road single engine crane that is certified as power-operated equipment that can hoist, lower, and horizontally move a suspended load, is required to be operated by a licensed crane operator, and has a gross vehicle weight rating of 54,000 pounds or more. The Heavy Crane definition excludes cranes that can be operated without a crane license, crane trucks that have mounted lifting equipment rated at 2,000 pounds or less, crane trucks that are designed to transport cargo, truck mounted derricks, side boom cranes, concrete pump trucks, loader cranes, knuckle-boom cranes, and tow trucks.

Emissions from heavy cranes can be calculated as a product of an emission rate, expressed in grams of pollutants emitted per unit of source activity, and a measure of their activity. Staff tried to model idle and exhaust emissions from cranes based on the best information available from EMFAC2017¹ and available data from industry.

Staff used emission rates incorporated in EMFAC2017 for idle and exhaust emissions. Not having crane-specific emission rates, staff used emission rates associated with Heavy Heavy Duty Diesel Single Unit Truck (T7 single) vehicle category, which is the closest EMFAC vehicle class to heavy cranes in terms of emissions characteristics. For exhaust emission rates, staff applied speed correction factors² based on the information provided on heavy cranes’ speed distribution from an industry source³ (Table 1). For idle emission rates, staff used summer-time idle emission rates of heavy-heavy duty diesel truck categories in EMFAC⁴, with some adjustments to account for higher fuel usage during the crane operation. Assuming that most of the time cranes are operating in an idle (or stationary) mode, staff scaled up the EMFAC idling emission rate using the ratio of crane fuel consumption (in units of gal/hr) over idling fuel consumption in EMFAC. Staff assumed a fuel consumption rate of 7.5 gal/hr for cranes with 60 ton capacity or higher, 4 gal/hr for those with less than 60 ton capacity, and 6 gal/hr for cranes with unknown capacity. The fuel use information was obtained from an industry source⁵.

Using a crane investigation report where multiple crane companies agreed to data-log and provide operation information on their cranes, staff assumed a typical heavy crane drives about 10,000 miles a year, and operate 300 hours (CARB, 2012)⁶ in stationary mode. For cranes that are using the low use provisions of the proposed amendments,

¹ CARB (2018), EMFAC2017 v1.0.2, <https://www.arb.ca.gov/msei/msei.htm>

² CARB (2018), EMFAC2017 Technical Support Documentation, See 4.3.2.1.4

³ Personal communication with Bryn Burke of Vertical Construction, Inc.

⁴ CARB (2018), EMFAC2017 Technical Support Documentation, See 4.3.2.2

⁵ Personal communication with Michael J. Vlaming of Vlaming & Associates

⁶ According to the crane investigation report, cranes typically operate 13 hours per week. Considering 52 weeks per year, cranes operate 676 hours per year. Based on the speed distribution provided by the industry, the average speed of cranes would be approximately 26.6 mph, resulting in 376 hours per year on road. The 300 idle hour was calculated by subtracting the on-road 376 hours from the 676 operation hours.

staff assumed a vehicle miles traveled (VMT) of 1,000 miles and stationary operation of 30 hours, which is proportional to VMT and stationary operation hours of those that are not using this provision.

Table 1: Speed distribution of cranes

SPEED (MPH)	FRACTION
0 - 5	10%
5 - 10	5%
10 - 15	5%
15 - 20	10%
20 - 25	10%
25 - 30	10%
30 - 35	15%
35 - 40	5%
40 - 45	5%
45 - 50	5%
50 - 55	15%
55 - 60	5%

3. SCENARIOS

For the purpose of emissions analysis, three regulatory scenarios (i.e., baseline, proposal, and alternative) were considered to assess the effects of the proposed amendments on NOx and PM2.5 emissions from heavy cranes. The “Baseline” scenario represents a case that reflects the current regulation (i.e., 2010 amendments to the Truck and Bus regulation). The “Proposal” scenario represents staff proposed amendments to the regulation, and the “Alternative” scenario represents a case where heavy cranes are not subject to any engine replacement or PM best available control technology (BACT) requirements. This scenario also assumes that starting 2019, no cranes will be retrofitted with PM filter.

For the “proposal” scenario, staff assumes that:

- Cranes with low use exemptions on average operate about 1,000 miles per year and do not need be replaced with 2010 or newer engines.

- As of January 1, 2018, any heavy cranes with diesel particulate filter (OEM or retrofit) is considered as compliant and does not need to be replaced with a 2010 or newer compliant engine.
- Staff assumed 85% PM emissions reductions for heavy cranes carrying retrofit PM filters.
- Crane population is assumed to stay constant. For example, as of October 1, 2018, there are approximately 640 heavy cranes that are subject to this rule, and their total population will stay constant in future years.
- The inventory assumes a natural attrition rate similar to EMFAC single-unit heavy duty trucks for heavy cranes of 17 years of age and older (Figure 1).

In addition to these assumptions, the “Baseline” scenario assumes that except for low use cranes (i.e., cranes with VMT of less than 1,000 miles per year), all other cranes must comply with the engine model year replacement schedule in the 2010 amendments to the truck and bus regulation, which is summarized in Table 2. In case of the “Proposal” scenario, the heavy crane population must follow the engine model year schedule listed in Table 3 while for the “Alternative” scenario, there is no enforced model year schedule. In the “Alternative” scenario, new cranes are only replaced through natural attrition.

Figure 1: Assumed retention rates for heavy cranes

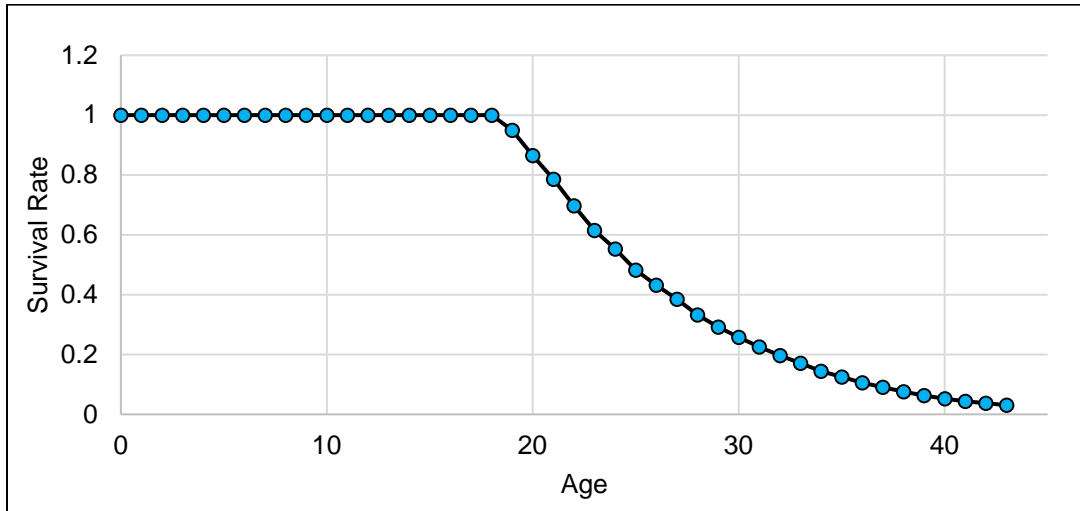


Table 2: Engine model year replacement schedule assumed for the “Baseline” scenario

<i>AS OF JANUARY 1,</i>	<i>COMPLIANT ENGINE MODEL YEARS</i>
2018	1996+
2020	2000+
2021	2004+
2022	2007+
2023	2010+

Table 3: Engine model year replacement schedule assumed for the “Proposal” scenario

<i>AS OF JANUARY 1,</i>	<i>FRACTION OF 2010 OR NEWER MODEL YEAR ENGINES</i>
2019	20%
2020	30%
2021	40%
2022	50%
2023	60%
2024	70%
2025	80%
2026	90%
2027	100%

4. INVENTORY RESULTS

Estimated NO_x and PM_{2.5} emissions from heavy cranes are illustrated in Figure 2 and Figure 3. As shown in these charts, the proposed amendments will result in 0.34 and 0.09 tons per day (tpd) fewer statewide NO_x emissions benefits in 2023 and 2031, respectively. In terms of PM_{2.5} emissions, the proposed amendments will result in fewer emissions benefits by 0.0068 and 0.0012 tpd in 2023 and 2031, respectively. Having no enforced replacement as well as no PM filter retrofits, the “Alternative” scenario shows higher NO_x and PM emissions than the other two scenarios.

Figure 2: NO_x emissions (tpd) associated with heavy cranes under three different compliance scenarios

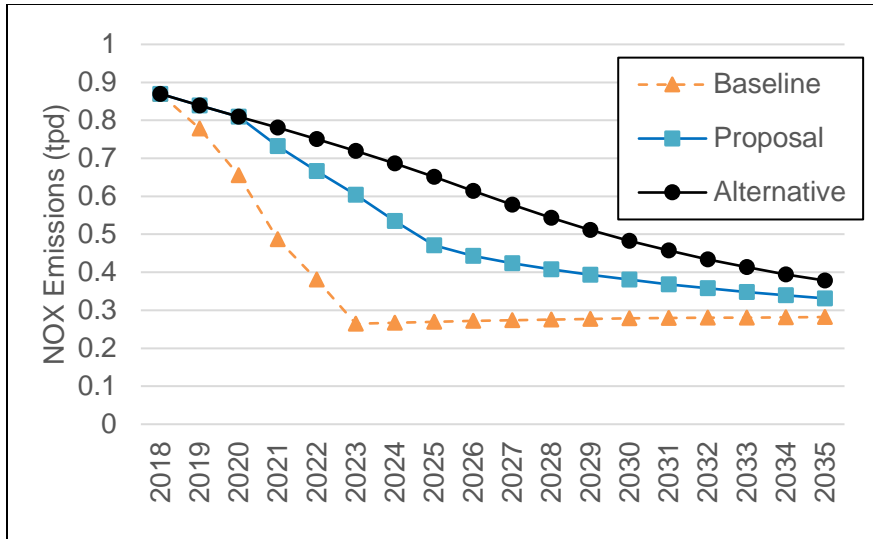
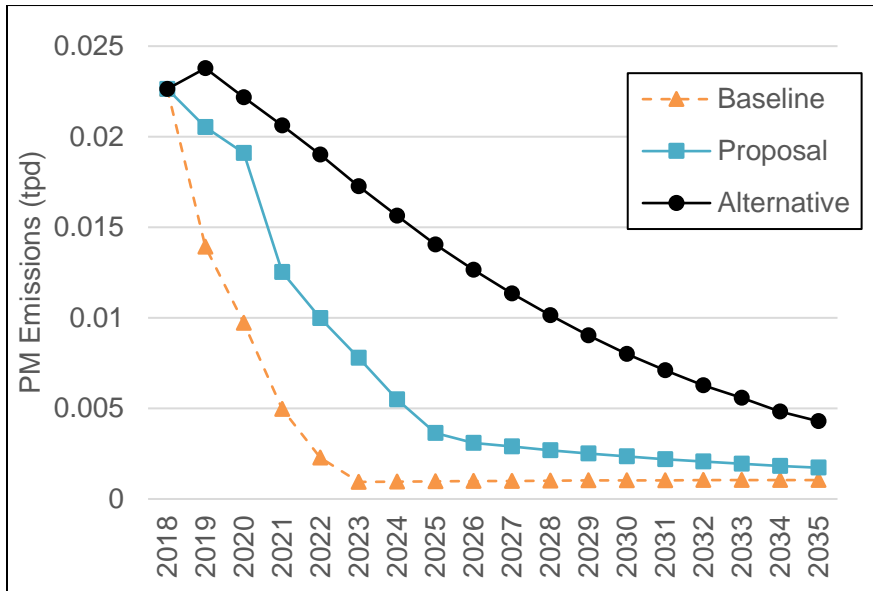


Figure 3: PM_{2.5} emissions (tpd) associated with heavy cranes under three different compliance scenarios



VI. ENVIRONMENTAL ANALYSIS

A. INTRODUCTION

This chapter provides an environmental analysis (EA) for the proposed amendments. Based on CARB's review, staff has determined that implementing the proposed amendments would not result in any potentially significant adverse impacts on the environment. This analysis provides the basis for reaching this conclusion. This section of the Staff Report also discusses environmental benefits expected from implementing the proposed amendments (17 California Code of Regulations (CCR) 60005 (b)).

B. ENVIRONMENTAL REVIEW PROCESS

CARB is the lead agency for the proposed amendments and has prepared this environmental analysis pursuant to its regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60000-60008). In accordance with the California Environmental Quality Act (CEQA), public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to preparing environmental impact reports, negative declarations, and initial studies (Public Resources Code section 21080.5; 14 CCR 15250). CARB has prepared this EA to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed amendments, as required by CARB's certified regulatory program (17 CCR 60005(b)). The resource areas from the CEQA Guidelines Environmental Checklist were used as a framework for assessing the potential for significant impacts (17 CCR 60005(b)).

If comments received during the public review period raise significant environmental issues, staff will summarize and respond to those comments in a response to environmental comments document prepared for the proposed amendments. The written responses to environmental comments will be approved prior to final action on the proposed amendments (17 CCR 60007(a)). If the amendments are adopted, a Notice of Decision will be posted on CARB's website and filed with the Secretary of the Natural Resources Agency for public inspection (17 CCR 60007(b)).

C. PRIOR ENVIRONMENTAL ANALYSIS

CARB approved the SWCV regulation in September 2003 to reduce the harmful health impacts of exhaust from diesel-fueled waste collection trucks. The SWCV regulation has reduced cancer-causing particulate matter and smog-forming nitrogen oxide emissions from these trucks by requiring owners to use CARB verified diesel emissions control technology that best reduces emissions, following a phased-in schedule from 2004 through 2010. The proposed amendments pertaining to the solid waste collection vehicles are only administrative in nature.

Chapter I of this Staff Report describes the regulatory background in more detail. The Staff Reports prepared for the original SWCV and Truck and Bus regulations and subsequent amendments did not identify any adverse environmental impacts.

D. PROPOSED AMENDMENTS

1. DESCRIPTION

The proposed amendments to the SWCV regulation will require reporting and provide clarity regarding scope and applicability for SWCVs. The amendments also propose to add heavy cranes to the SWCV regulation, thereby no longer requiring them to comply with the Truck and Bus regulation. The Truck and Bus regulation was amended in 2014 and included additional flexibility for heavy crane fleets. Those amendments were voided in 2018 following a 2014 lawsuit brought against CARB. Therefore, heavy cranes must now comply with the engine model year replacement schedule and must meet the 2010 or newer model year engine requirements by 2023.

The proposed SWCV amendments include adding a feasible compliance path that recognizes heavy crane owners are adversely affected by the high cost of replacement and limited ability to retrofit and repower, while taking into account that the regulation with the proposed amendments will ultimately result in nearly the same projected air quality benefits from 2027 onward. This will ultimately facilitate compliance with the upgrade requirements and better ensure the environmental benefits of the regulation are met. The proposed amendments include the following changes:

- Add compliance schedule for heavy cranes.
 - Allow heavy cranes to phase-in 2010 or newer model year engines at a rate of 10 percent per year, starting January 1, 2019 with an initial requirement that 20 percent of the heavy crane fleet be replaced with 2010 or newer model year engines on January 1, 2019.
 - Heavy crane fleets using this option in the Truck and Bus regulation were required to have 10 percent of their heavy crane fleet replaced with 2010 or newer engines by January 1, 2018.
 - Heavy cranes equipped with a PM filter by January 1, 2018 will be considered to meet the 2010 or newer model year engine requirement due to early action.
- Backup vehicle exemption.
 - Up to 1,000 miles per year (only California miles for heavy cranes).
 - Emergency operations are excluded from the annual miles traveled.
- Add reporting requirements for SWCV and heavy cranes.
 - The first reporting deadline is July 1, 2019.
 - Report changes within 30 days of vehicle purchase/sale.
 - Report annual mileage for backup vehicles each January.
 - Report retrofit information.

2. METHODS OF COMPLIANCE

Ultimately, stakeholders will be required to replace or retrofit existing heavy crane equipment with 2010 or newer model year engines, unless the heavy crane received a credit for meeting the PM upgrade requirements early or it stays below the low-use mileage threshold. SWCVs should have already met the upgrade requirements unless they operate below the low-use mileage threshold. Heavy crane fleets and SWCV fleets will be required to report vehicle and fleet information to CARB.

E. ENVIRONMENTAL IMPACTS

1. AIR QUALITY BENEFITS

The SWCV regulation, as amended by the proposed amendments, would result in incremental, temporary, changes to implementation of the regulation. The proposed amendments would provide a schedule for heavy crane replacements as described in Chapter XI of this report. Staff projects a temporary delay in some emission benefits in the near term (until 2027) compared to emission benefits that may have been achieved absent the proposed amendments. Currently, all heavy cranes are required to phase in 2010 or newer model year engines by 2023 (deadline based on the engine model year of the vehicle) unless the heavy crane stays below the low-use mileage threshold. To comply with the 2014 amendments, many heavy cranes were upgraded to meet the January 1, 2018 requirements, including the phase-in of 2010 or newer model year engines for 10 percent of the heavy crane fleet. The proposed amendments to the SWCV regulation require upgrades to 2010 or newer model year engines through a phase-in by percentage of fleet from 2019 to 2027, unless the heavy crane received a credit for meeting the PM upgrade requirements early or it stays below the low-use mileage threshold.

Heavy cranes have strict Occupational Safety and Health Administration (OSHA) requirements that limit the ability to retrofit or repower existing vehicles and, therefore, impacted the emissions benefits expected through the Truck and Bus regulation. Any vehicle that could not be retrofitted with a PM filter was eligible for an extension until 2018. Heavy cranes are highly specialized equipment; they are not available for rent or on a temporary basis, and are only available for purchase from a small number of manufacturers worldwide with long lead times. Additionally, the cost of replacing this specialized equipment is significantly greater than most other on-road heavy-duty diesel vehicles, typically several hundred thousand dollars. Extending the phase-in of heavy cranes with 2010 or newer model year engines better enables compliance with the upgrade requirements

The amendments only change the short term clean-up of the heavy crane fleet and, therefore, do not result in any increase in emissions compared to existing environmental conditions in 2018. Also, despite the projected near-term delay in some emissions benefits compared to what was originally projected to be achieved without amendments, emissions of diesel PM, NOx, and other criteria pollutants will continue to drop from

today's levels as a result of the regulation with the proposed amendments and it will ultimately result in nearly the same projected air quality benefits from 2027 onward.

Since the 2014 amendments to provide additional flexibility to the Truck and Bus regulation were challenged in court on procedural grounds and are being rescinded, there will be unanticipated emissions benefits. In addition, part of the 2014 amendments to the Truck and Bus regulation included a phase-in of heavy crane upgrades to 2010 or newer model year engines from 2018 to 2027 that has already been evaluated. Therefore, the proposed amendments will protect the anticipated emissions reductions from both the Truck and Bus and SWCV regulations and the goals of the Diesel Risk Reduction Plan will continue to be met by reducing health impacts associated with exposure to diesel PM. The proposed amendments will also continue to provide NOx reductions necessary to meet long term State commitments associated with attaining state and federal air quality standards.

The amendments also reduce compliance costs for fleet owners when compared to the Truck and Bus regulation prior to the 2014 amendments because they will be able to defer heavy crane purchases and would have more time to raise the capital needed. Based on the foregoing analysis, staff concludes the proposed amendments do not result in any significant adverse impacts to air quality compared to current environmental conditions and the regulation as amended would result in substantial long term air quality benefits. Please refer to Chapter IV of this Staff Report for a more detailed discussion and graphs showing the air quality benefits provided by the SWCV Regulation.

2. OTHER RESOURCE AREAS WITH NO IMPACTS

Staff concludes that the proposed amendments would not result in any significant adverse impacts to any other resource area. The proposed amendments provides three additional years for heavy crane owners to purchase equipment with 2010 or newer model year engines and better financially enable these fleet owners to comply. Therefore, there are no adverse environmental impacts to any resource areas and the methods of compliance remain the same with the proposed amendments, other than the compliance flexibility provisions that would affect only the projected air quality benefits discussed above. There are 254 heavy cranes that have to be replaced and is equivalent to about 25 heavy cranes being sold each year if they are not low-use. Even if the majority of those are sold out of state, it is a negligible traffic impact from transporting cranes sold across state lines. The proposed amendments do not cause any changes to the existing truck and bus infrastructure in California or new development, modification to buildings, or new land use designations and do not involve any activity that would involve or affect aesthetics, agriculture resources, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, or utility and service systems. Because the amendments do not result in any

action that could affect these resources, staff concludes the proposal would not result in any adverse impacts.

Since no significant adverse environmental impacts were identified, this environmental analysis does not include a discussion of mitigation measures or environmental alternatives (17 CCR 60006; 14 CCR 15252).

VII. ENVIRONMENTAL JUSTICE

State law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. Government Code, section 65040.12, subdivision (c). CARB is committed to making environmental justice an integral part of its activities. The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of State law (CARB, 2001). These policies apply to all communities in California, but recognize that environmental justice issues have been raised more in the context of low-income and minority communities.

The objectives of CARB's statewide regulatory programs are better air quality and reduced health risk for all residents throughout California. The Board has a policy that community health and environmental justice concerns be addressed in all of CARB's regulatory programs.

The proposed amendments are consistent with the goals of the current regulation to reduce PM and NOx, as well as reduce the associated cancer risks and other health impacts over time statewide. The emissions reductions would not occur as quickly as otherwise required absent the amendment, but is the most feasibly compliance alternative for heavy cranes.

The amended regulation remains consistent with CARB's environmental justice policy of reducing exposure to air pollutants and reducing the adverse impacts from toxic air contaminants in all communities as expeditiously as possible, including low-income and minority communities.

VIII. ECONOMIC IMPACTS ASSESSMENT

The proposed amendments to the SWCV regulation are expected to provide substantial economic relief to the affected heavy crane fleets and would result in a small increase to administrative reporting costs for reporting SWCVs. The proposed schedule is essentially the same as the schedule approved with the 2014 amendments and would maintain a level playing field for all crane owners that were in compliance before the 2014 amendments to the Truck and Bus regulation are rescinded. The proposed amendments would also protect the investments of the crane owners who in good faith were able to make upgrades to their equipment before 2018.

To determine the economic impacts, staff estimated the costs that the fleet owners would incur to meet the 2011 Truck and Bus regulatory requirements and those associated with the proposed amendments to the SWCV Regulation from 2019 to 2027. The difference in costs are the economic impact of the proposed amendments. Additional cost details are in Appendix D.

A. COMPLIANCE COSTS ANALYSIS

The 2011 Truck and Bus regulation requires that heavier vehicles be equipped with a PM filter starting in 2012 and later be replaced with those that meet the 2010 or newer emission standard. Because owners had limited ability to safely retrofit heavy cranes with PM filters, CARB granted heavy crane owners annual PM filter extensions until January 1, 2018. In 2018, all heavy crane operators were operating under the expectation that 10 percent of their cranes needed to have 2010 engines starting January 1, 2018 and the cranes that were already equipped with PM filters would not need to be replaced. Crane owners were required to report their crane information to demonstrate compliance. Because the 2014 amendments are being rescinded, heavy cranes that do not have PM filters are non-compliant and must be retired or replaced immediately.

Today there are currently 683 heavy cranes in California where 169 (25 percent) have 2010 or newer engines. Based on the 2014 amendments being rescinded, 254 heavy cranes (37 percent) that could not be retrofitted with a PM filter will now need to be replaced or parked immediately, and all other cranes with pre-2010 engines will need to be replaced between 2020 and 2023.

B. STATEWIDE COSTS

Economic impacts are estimated relative to the baseline of existing regulatory requirements. Because the 2014 Truck and Bus amendments were rescinded, the 2011 Truck and Bus Regulation represents the existing regulatory requirements (baseline). The proposed amendments result in two main impacts that are described in this chapter: 1) increased reporting costs for SWCV fleets and heavy crane operators; and 2) a net cost savings to heavy crane operators who will have a relaxed phase-in option.

For purposes of determining compliance costs and emissions benefits, the baseline assumes all cranes will comply with the 2011 Truck and Bus regulation requirements beginning in 2019. The baseline includes costs for replacing existing cranes that currently do not have PM filters in 2019. This represents a baseline to show the impacts of meeting the compliance requirement absent the amendments, but staff does not believe it is a feasible compliance path for heavy cranes. Compliance costs for all scenarios assume that owners would replace existing cranes with new heavy cranes and that crane purchases are amortized over 6 years, with an interest rate of 6 percent which is typical for a crane purchase loan. (CARB, 2018b)

The proposed amendments would add a new phase-in and associated reporting requirements for heavy crane fleets, which would require heavy cranes to be upgraded to those having 2010 model year or newer engines at a rate of 10 percent of the heavy cranes in the fleet per year from 2019 to 2027. This proposal also recognizes early actions owners have already taken to comply if they have already been upgraded to have a PM filter.

C. REPORTING

The 2011 Truck and Bus Regulation does not require reporting of any vehicles with a 2010 or newer engine and because staff assumed heavy cranes to be replaced with new ones (cranes with 2010 or later model year engines), the corresponding reporting cost of replacements to meet the 2011 Truck and Bus Regulation would be zero.

With the proposed amendments, there would be initial reporting costs for diesel fueled SWCVs with 1960 to 2006 model year engines and accrued annual reporting costs for updating changes in the fleet that are currently not required. These cost would decline over time as older trucks are sold out of the fleet. Crane fleets would have annual reporting requirements until they upgrade to 2010 engines. Most are expected to report each year from 2019 to 2027.

D. THE ECONOMIC IMPACT OF THE PROPOSED AMENDMENTS

The economic impacts would be the difference in costs between complying with the 2011 Truck and Bus regulation and the proposed amendments to the SWCV Regulation. Table 4 shows the side-by-side amortized costs for baseline and the proposed amendments to the SWCV Regulation. The proposed amendments smooth out the compliance costs over several years with a total savings of about \$59 million for the analysis period of 2019 to 2032.

Table 4: Amortized Incremental Costs of the Proposed Amendments

Calendar Year	Baseline Compliance	Proposed Amendments Upgrades	Proposed Amendments Reporting	Incremental Difference
2019	\$18,576,485	\$644,741	\$91,725	(\$17,840,019)
2020	\$18,576,485	\$1,665,093	\$18,178	(\$16,893,214)
2021	\$18,576,485	\$1,976,929	\$18,178	(\$16,581,378)
2022	\$18,576,485	\$6,470,531	\$18,178	(\$12,087,775)
2023	\$27,589,313	\$7,703,254	\$18,178	(\$19,867,881)
2024	\$27,589,313	\$8,859,290	\$18,178	(\$18,711,845)
2025	\$9,012,828	\$11,039,317	\$18,178	\$2,044,666
2026	\$9,012,828	\$13,208,037	\$18,178	\$4,213,386
2027	\$9,012,828	\$15,858,055	\$18,178	\$6,863,405
2028	\$9,012,828	\$11,364,453	\$5,391	\$2,357,015
2029	\$0	\$10,131,730	\$5,391	\$10,137,120
2030	\$0	\$8,701,175	\$5,391	\$8,706,566
2031	\$0	\$6,150,926	\$5,391	\$6,156,317
2032	\$0	\$2,961,855	\$5,391	\$2,967,245
			Total	(\$58,536,391)

E. IMPACTS ON JOBS AND BUSINESSES

The proposed amendments provide more compliance time for a typical business, including small businesses, and therefore result in a net cost savings. The impact to each business will depend on the number of cranes they currently operate, and the model year of those cranes.

Given the negligible reporting costs and the cost savings shown in Table 4, there may be an expansion of businesses or jobs in the State of California as a result of this rulemaking action. Staff does not expect any impact relative to the creation or elimination of businesses or jobs in the State of California. However, based on information reported by vehicle owners subject to the Truck and Bus regulation, the size of fleets with heavy cranes before and after the Heavy Crane Phase-In Option was an available compliance path, showed no increase in fleet size. Notwithstanding the impact of the California economy and the variable reporting requirements based on the fleet’s compliance path, the fleet size remained about the same. Therefore, there will likely be no significant change in the creation, expansion, or elimination of businesses or jobs in the State of California.

F. SIGNIFICANT ADVERSE ECONOMIC IMPACT

The proposed changes to the regulation will not have a significant adverse economic impact on businesses in the State of California, as they provide for additional compliance time and flexibility, which will reduce compliance costs for all fleet owners. All heavy crane fleet owners have had the same compliance requirements since January 1, 2012, so the economic impact is only considered relative to the proposed modifications.

G. BENEFITS

The proposed amendments benefit heavy crane operators by providing a feasible compliance schedule. All heavy crane operators were operating under the expectation that they would meet the requirements in the 2014 Truck and Bus amendments. Now that the 2014 amendments were rescinded, almost half of the heavy cranes in California would need to be replaced or cease operation by January 1, 2019. It is impractical to replace these cranes in a matter of months given the fact that cranes are highly specialized equipment that are only available from a handful of manufacturers worldwide. Cranes have high capital costs and cannot be rented or leased on a temporary basis. Parking a large percent of these heavy cranes immediately would be disruptive for crane fleets and businesses who rely on crane services, and would result in ripple effects beyond the crane fleets themselves which would adversely impact the California economy. The proposed amendments mitigate these adverse impacts by providing more time for heavy cranes to comply, as was anticipated under the 2014 Truck and Bus amendments. The proposed amendments result in a cost-savings to heavy crane owners.

The proposed amendments benefit SWCV fleets by ensuring vehicles are not negatively impacted by a registration hold resulting from SB 1. Beginning January 1, 2020, SB 1 requires the DMV to register diesel vehicles only if they comply with the 2011 Truck and Bus Regulation. A list of compliant vehicles and those subject to other regulations will be identified by CARB for DMV use. Vehicles subject to the SWCV regulation are not required to report to CARB and so cannot be identified as subject to another regulation. Without the proposed reporting requirements, SWCVs would potentially experience registration delays in 2020, which could result in multiple SWCV fleets being unable to operate, creating significant adverse outcomes for these businesses and the individuals and companies for which they provide services.

IX. EVALUATION OF REGULATORY ALTERNATIVES

Government Code section 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. This section discusses alternatives evaluated and provides reasons why these alternatives were not included in the proposal. As explained below, no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing law. The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

The proposed amendments affecting SWCVs are administrative in nature and do not affect emissions. The amendments affecting cranes are performance standards. PM BACT is defined as the best available technology based on emissions performance of any retrofit system or one that meets the 0.01 gram per brake horsepower hour engine emissions standard. The 2010 model year engine or equivalent requirement is also a performance standard for reducing NOx because any engine or technology that achieve equivalent emissions as a 2010 engine meets the standard.

The proposed amendments would have an economic impact resulting in overall cost savings on the state's business enterprises of more than \$10 million in savings in one or more years of implementation. CARB staff evaluated alternatives to determine whether there are alternatives that would be equally as effective in achieving increments of environmental protection in full compliance with statutory mandates within the same amount of time as the proposed regulatory requirements. CARB will evaluate alternatives submitted to CARB and consider whether there is a less costly alternative or combination of alternatives that would be equally as effective in achieving increments of environmental protection in full compliance with statutory mandates within the same amount of time as the proposed regulatory requirements, as required by Health and Safety Code section 57005.

Staff evaluated three alternative strategies and concluded that the proposed amendments provide the most effective and least burdensome approach to impacted fleets while still providing necessary emission benefits. Staff did not find any of the alternatives considered to be more effective in carrying out the purpose for which the proposed regulatory action is proposed or to be as effective as or less burdensome to affected businesses than the proposal. The alternatives considered and staff's rationale for finding them unsuitable is discussed below

A. NO ACTION

The first alternative considered was to take no action. Staff rejected this alternative for the following reasons:

Maintaining the status quo where no reporting is required for SWCVs would cause confusion in the industry and could cause delays in SWCV registration with the DMV.

Optional voluntarily reporting would be less effective in identifying SWCV trucks since fewer would likely report the information to CARB and would cause some confusion.

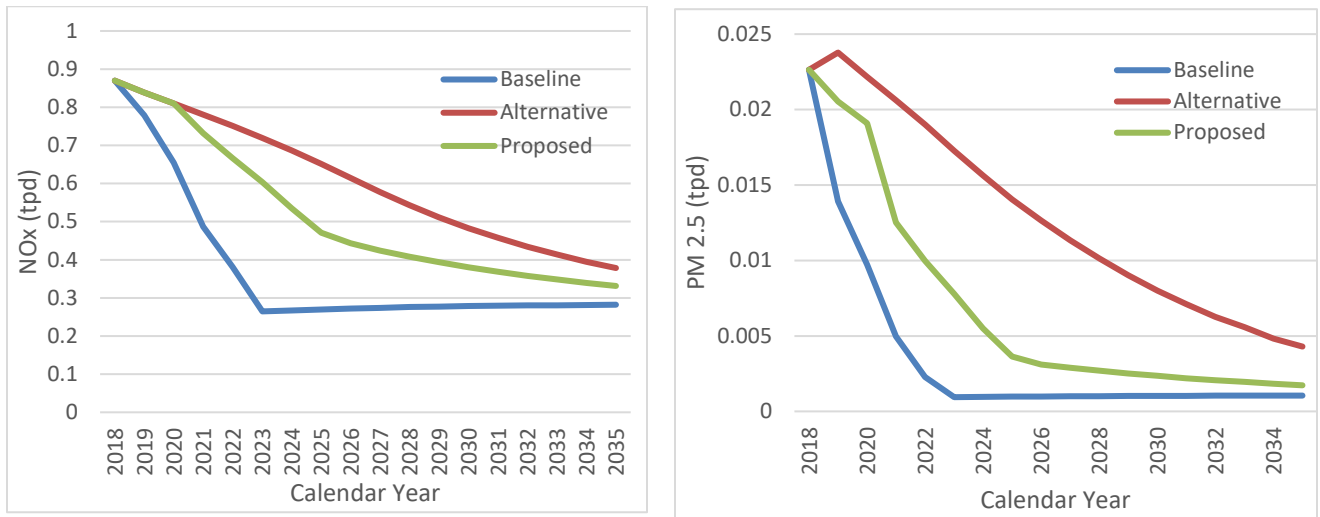
Crane fleets would have to upgrade too many cranes at the same time and could not realistically come into compliance right away. All heavy crane owners were operating under the same compliance expectations until the challenges to the 2014 amendments were decided. All cranes that were in compliance before the changes were rescinded are now out of compliance with existing requirements. Out of 683 heavy cranes, there are 254 that would need to be replaced or parked immediately which is impractical to do in a matter of months given the high costs and the fact that cranes are highly specialized equipment, they are not available for rent or on a temporary basis, and are only available from a handful of manufacturers worldwide with long lead times. The only realistic option would be to park existing cranes immediately which would be disruptive for those needing crane services, would adversely affect crane operators and other businesses in California, and could not reasonably achieve the required emissions reductions in the compressed timeline that is now required due to the 2014 amendments being rescinded.

This option is rejected because it does not meet the goals to implement a feasible method to achieve emission reductions and to avoid unnecessary delays in SWCV registrations.

B. EXEMPT ALL CRANES FROM EXISTING PM AND NO_x REDUCTION REQUIREMENTS

An alternative to exempt all heavy cranes from compliance requirements would mean that no further PM or NO_x emission reductions would be achieved from heavy cranes beyond normal replacements which is counter to meeting air quality objectives and would not be protective of public health. Furthermore, such a change could mean that PM filter retrofits that were installed could be removed and would result in an emissions increase from 2018 to 2019. Figure 4 shows the estimated NO_x and PM emission comparisons of exempting all cranes from regulatory requirement.

Figure 4: NOx and PM emissions (tpd) associated with heavy cranes under three different compliance scenarios



Lastly, suspending compliance obligations would also create a competitive disadvantage for crane owners that complied which could put them in a less competitive position. This could also mean that some fleet could potentially sell off newer and cleaner equipment which could result in more potential adverse impacts of emissions. This option is rejected because it could result in an increase in emissions, it fails to meet the goals of meeting State and federal air quality standards and would not reduce premature deaths attributable to exposure to PM2.5, and would not reduce exposure to diesel PM in support of the Diesel Risk Reduction Plan.

C. STAKEHOLDER WORKSHOP PROPOSALS

Two proposals were received during the workshops in 2018 on September 19 and 21 that were evaluated to determine if they were less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance. These proposals were considered during development of the regulation that is now being proposed for formal public comment as follows.

Transfer of Credit Proposal

At one of the workshops, stakeholders identified a concern relative to selling a vehicle that had earned this credit and not having the credit transfer to the new owner. Applying the credit only to the initial owner substantially devalues the heavy crane for the next buyer who could not use it in California. Staff’s proposal includes language that this credit will remain with the vehicle and be transferred when the vehicle is sold provided that documentation is submitted to CARB to confirm the engine was retrofitted prior to January 1, 2018, or that a crane that is equipped with an OEM PM filter was operated in California and was reported in time to claim the credit. Staff is proposing to provide credit for heavy cranes that are equipped with a retrofit or original equipment PM filter before January 1, 2018, by counting such heavy cranes as though they meet

the proposed 2010 model year engine requirement and would be exempt from the replacement requirement as long as it remains in the fleet.

Increase of Low-Use Mileage Threshold Proposal

At both workshops, stakeholders requested various increases in the mileage threshold. Stakeholders expressed concern regarding the overhead cost of a heavy crane while only being allowed a 1,000 mile exemption annually. Staff requested and received information and documentation regarding costs, such as registration, certification, and insurance and revenues. After evaluating the emissions impact and the profit versus the mileage threshold information received, staff believe it is appropriate to maintain the 1,000 mileage limit to maintain a level playing field for all crane owners. Information received about crane operating cost and revenue is in Appendix C.

X. JUSTIFICATION FOR ADOPTION OF REGULATIONS DIFFERENT FROM FEDERAL REGULATIONS CONTAINED IN THE CODE OF FEDERAL REGULATIONS

The proposed regulation would only apply in California and would not affect nor conflict with federal regulations. No federal regulations address the same issues as CARB's proposed regulations

XI. SPECIFIC PURPOSE AND RATIONALE FOR THE ADOPTION, AMENDMENT, OR REPEAL

The proposed amendments to the SWCV regulation will add a reporting requirement for SWCVs to allow CARB staff and DMV to identify these trucks are not subject to the Truck and Bus regulation and is designed to implement a feasible timeline for heavy cranes to reduce criteria pollutants, toxic air contaminants. This chapter describes each problem, the proposed solution and the rationale supporting the proposed solution for each change.

The proposed solution is to amend the SWCV regulation to require reporting of SWCVs and to expand the scope of the regulation to include heavy cranes with a separate compliance path that is unique to heavy cranes.

The proposed amendments include changes to title 13, California Code of Regulations (CCR), sections 2021 and 2021.1, and adoption of new sections 2021.2 and 2021.3. Section 2021 includes the scope, applicability, definitions and general requirements that apply to cranes and SWCVs. Section 2021.1 describes the SWCV compliance requirements and deletes language that is outdated and no longer relevant. A new section number 2021.2 was added to describe the compliance requirements for heavy cranes. Section 2021.3 is a new section number that includes the reporting and record keeping requirements for SWCVs and heavy cranes. The existing record keeping requirements language for SWCVs was modified to be consistent with the latest changes but do not make major changes to record keeping requirements for SWCVs.

A. SECTION 2021 (A) SCOPE AND APPLICABILITY

The problem is that the scope of the regulation needs to be modified to update the language to clearly identify which vehicles are affected by the regulation and the scope needs to be expanded to include certain specialized cranes. Existing language also does not include language to ensure that owners of affected vehicles disclose information when they sell affected vehicles in California.

The proposed solution is to amend language to be consistent changes in the section numbering and to expand the definition to include heavy cranes.

The rationale for the proposed solution is to make clear that heavy cranes are in the scope of this regulation and will ultimately not be subject to the Truck and Bus regulation. In addition, the changes make it clear that vehicle sellers have responsibilities to meet when selling their vehicles in California, and improves consistency with other diesel vehicle regulations.

B. SECTION 2021 (B) DEFINITIONS

The problem is that several definitions need to be added to clearly identify compliance requirements of the amended regulation.

The proposed solution is to delete language that is no longer needed and to add new definitions to add clarity that commonly applies to SWCVs and heavy cranes. Most of the definition changes reflect updates to be more consistent with other more recent regulations and are self-explanatory. Certain definitions modify or replace existing language and are described in more detail below.

The rationale for the proposed changes are to clearly identify definitions needed to implement the proposed changes and to improve consistency with other existing regulations that often affect the same owners. These changes will improve consistency in terminology and reduce confusion for owners affected by multiple diesel in-use vehicle regulations.

Definition for a Solid Waste Collection Vehicle

The problem with existing language is that SWCV vehicles are defined in the regulation as “vehicles used for the purpose of collecting residential and commercial solid waste for a fee”. This definition based on usage can vary depending on how a vehicle is used and does not clearly specify whether the vehicle is subject to the regulation when the vehicle is used to haul waste for a fee on an intermittent basis.

The proposed solution is to change the definition of “Solid Waste Collection Vehicles” to only include “Garbage Packer” and “Garbage Roll-Off” body types with new definitions added for each type to Section 2021 (b).

The rationale supporting the proposed solution is that trucks with garbage packer body types are easily identified and are innately limited to waste collection purposes. These include front-, side-, and rear-loading trash compaction vehicles. Garbage Roll-Off trucks are also easily identified and are designed for the purpose of dropping off waste containers at a site for later pick up and disposal. Both of these vehicle types have been upgraded to comply with the SWCV regulation in the past and changing the definition provides more clarity regarding the types of trucks that have been historically enforced as subject to the SWCV regulation which also simplifies identifying which regulatory requirements the vehicle must meet. Changes in the definition removes ambiguity for the fleet owner.

Definition for Low-Use Vehicle

The problem is the existing nomenclature for low-use or backup vehicles needs to be consistent for heavy cranes and SWCV. The existing Backup Vehicle definition applies up to 1,000 miles on the vehicle but does not adequately address the vehicles like cranes that travel across state lines.

The proposed solution is to define vehicles traveling less than 1,000 miles in California as low-use and to delete the existing Backup Vehicle definition.

The rationale supporting the proposed solution ensures consistency with other diesel in-use regulations, and ensures there is a level playing field for vehicles that travel across State lines by giving equal access to the low-use exemption.

Definition for Emergency Operation and Emergency Support Vehicle

The problem is that existing language for backup vehicles or low-use vehicles does not include language to address situations where a vehicle may be needed to support an emergency operation.

The proposed solution is to add definitions for “Emergency Operation” and “Emergency Support Vehicles” that is consistent with other similar heavy-duty diesel regulations.

The rationale for the proposed solution is to clearly identify what constitutes and emergency operation and what is an emergency support vehicle. The definitions allow for language to excluding emergency use from the annual mileage for low-use vehicles and ensures there are no delays in addressing an emergency event. The language provides for flexibility for fleets to assist in emergency support operations without losing their exemption.

Definition for Heavy Crane

The problem is that certain specialized cranes have strict safety requirements as described in Chapter II that limit the ability to safely retrofit or repower existing vehicles. Many types of cranes and crane trucks are owned and operated in California; however, the costs and unique issues only apply to a subset of larger, heavier specialized cranes. A definition is needed to clearly identify which cranes are included and which are not. Through extensive collaboration with stakeholders that own cranes, industry representatives, and a CARB crane investigation, performed in 2012 with five fleets that owned heavy cranes, staff determined there are issues with retrofitting and repowering the cranes due to Occupational Safety and Health Administration safety requirements.

The proposed solution is to add a definition for “Heavy Crane” that is defined as an on-road single engine crane that is certified as power-operated equipment that can hoist, lower, and horizontally move a suspended load, is required to be operated by a licensed crane operator, and has a GVWR of 54,000 pounds or more. A heavy crane is not designed to carry or tow cargo.

The rationale supporting the proposed solution is that the definition was developed in coordination with crane owners to narrow the scope to larger specialized cranes that have these unique circumstances. The definition does not include crane trucks, self-loading trucks, or other vehicles because they can be repowered, retrofitted and can readily be purchased use where heavy cranes cannot.

Definition of Fleet and accompanying definitions for Federal Fleets, Rental or Leased Fleets, Fleet Owners

The problem is that a fleet definition is needed to determining the appropriate Heavy Crane fleet size for determining compliance and to identify which vehicles need to be reported.

The proposed solution is to add definitions of “Fleets”, “Rental or Leased Fleets”, and “Fleet Owners” as they apply to heavy crane fleets and SWCV fleets.

The rationale supporting the proposed solution is that these definitions will clarify applicability and limitations for certain fleets and ensure fleet owners understand their responsibilities.

Definition for Retired

The problem is that a retired vehicle definition is needed to clearly identify there not be subject to the proposed regulation and a clear definition is needed.

The proposed solution is for “Retired” be defined as a vehicle that has been sold, transferred outside of California, or has been junked.

The rationale supporting the proposed solution is to provide clarification to fleet owners to better understand the compliance requirements of the regulation and better enable accurate reporting.

Definition for Solid Waste Collection Vehicle

The problem is that the existing SWCV definition is based on usage and can vary depending on how a truck is used. This creates ambiguity for fleet owners and for enforcement when the use of a truck changes.

The proposed solution is to modify the existing definition of SWCV to delete text by striking the language “is used for the purpose of collecting residential or and commercial solid waste for a fee” and adding language to include a garbage-packer vehicle or a garbage-roll off vehicle that is already defined.

The rationale for the proposed solution is to simplify the definition by defining the truck body type and removing references to how a vehicle is use. This eliminates ambiguity for a vehicle that is used periodically for other uses and limits the definition to the two types that have been upgraded to comply with the SWCV requirement in 2011.

Definition for Verified Diesel Emission Control Strategy (VDECS)

The problem is that vehicles with retrofits need to be reported and have associated record keeping requirements. A definition is needed to ensure that vehicles using

VDECS to comply with the upgrade requirements understand the requirements and that the correct information is reported.

The proposed solution is to add this definition for both SWCVs and heavy cranes.

The rationale supporting the proposed solution is to provide clarification to fleet owners to better understand the compliance requirements of the regulation and better enable accurate reporting.

C. SECTION 2021 (C) GENERAL REQUIREMENTS

The problem is that there are many general requirements that apply to both SWCVs and heavy cranes that are predominantly nonexistent in the current SWCV regulation and need to be added, and would be proposed to be added relative to heavy cranes.

The proposed solution is to add a section that covers the following: leased vehicle responsibility; compliance requirement rounding; determining compliance for vehicle upgrades made using public funds; failure or damage of a verified diesel emission control strategy; maintaining compliance; records audits, retention and provision; right of entry by CARB staff; vehicles awaiting sale; and severability of the regulation. The following provisions are specifically addressed below: manufacturer delay; disclosure of the regulation to a vehicle purchaser; fleet compliance verification prior to use; certificates of reported compliance and the provision thereof; and non-compliance penalties.

The rationale for this proposed solution is to provide consistency for both heavy cranes and SWCVs.

D. SECTION 2021(C)(1) MANUFACTURER DELAY

The problem is that when purchasing engines or new vehicles to meet compliance requirements, fleet owners may face delays from the manufacturer with receiving their orders in time to meet the compliance deadline. These delays are not under the control of the fleet owner and may result in their not meeting the upgrade requirements by the deadline.

The proposed solution is to add a section in 2021.3(c) Compliance Requirements to address the problem and proposes a definition of manufacturer delay for replacement engines or vehicles that allows the fleet owner who has purchased, or has entered into contractual agreement at least 4 months prior to the required compliance deadline to be allowed until May 1 of the compliance year to upgrade the vehicle.

The rationale for the proposed solution is that the addition of this provision allows fleet owners to be considered compliant within a specified timeframe if they have made efforts to comply with the replacement requirement yet cannot due to delays beyond their control.

E. SECTION 2021.1 (C)(2) NON-COMPLIANCE

The problem is that fleet owners need to know what penalties the fleet owner will be subject to if a fleet is not in compliance with the requirements of the regulation. They will also need to know what enforcement action may be taken if the fleet owner fails to submit any information required by this regulation or knowingly reports false information for purposes of compliance with the regulation.

The proposed solution is to add a Non-Compliance section to the regulation. The Non-Compliance section specifically states that any fleet that is not in compliance with the requirements of the regulation, fails to submit any information, report, or statement required by the regulation, or knowingly submits a false statement or representation in any application, report, statement or other document filed, maintained or used for the purposes of compliance with the regulation will be subject to penalties. These civil or criminal penalties are under sections 39674, 39675, 42400, 42400.1, 42400.2, 42402.2, and 43016, of the Health and Safety Code.

The rationale supporting the proposed solution is to make it clear to a fleet owner what the potential penalties may be. The language expands upon the existing section by adding more detail and clarity on civil or criminal penalties fleets may be subject to if a fleet is not in compliance with the regulation or knowingly provides false documentation for the purpose of demonstrating compliance with the regulation.

F. SECTION 2021(C)(3) DISCLOSURE OF REGULATION APPLICABILITY

The problem is that fleets often sell equipment into a secondary market to recoup capital investments. However, secondary market buyers may not be aware of all applicable laws and regulations applying to equipment they are seeking to purchase. This may lead to an unintended purchase of non-compliant equipment with no form of recourse for the buyer. Additionally, if the new buyer is not aware of the regulation and does not upgrade or replace the equipment as required, there will be a negative emissions impact.

Staff proposes to require persons selling a heavy crane as defined earlier to provide a disclosure in writing to the buyer stating “An on-road single engine diesel-fueled heavy crane with a manufacturer’s GVWR of 54,000 pounds or more operated in California is subject to Section 2021.3 of the SWCV regulation that now includes heavy cranes. It therefore could be subject to accelerated upgrade requirements to reduce emissions of air pollutants. For more information, please visit CARB’s SWCV website at <https://www.arb.ca.gov/msprog/SWCV/SWCV>.”

The rationale of the proposed solution is that this statement will provide prospective buyers with enough information to be made aware that the vehicle they are intending to purchase may be subject to accelerated turnover requirements and factor that into their purchasing decision.

G. SECTION 2021(C)(4) CERTIFICATE OF REPORTED COMPLIANCE AND COMPLIANCE REQUIREMENTS FOR BROKERS, MOTOR CARRIERS, AND DISPATCHERS

The problem is that companies that hire fleets do not currently have an easy method to identify fleets that are compliant with the proposed amendments to this regulation, and may unintentionally hire non-compliant fleets to operate in California. This could lead to an un-level playing field for compliant businesses competing against non-compliant businesses. Additionally, fleets that lease vehicles from other fleets may be confused about which fleet is subject to the proposed amendments.

Staff proposes to add a Certificate of Reported Compliance and Compliance Requirement section to the regulation. The compliance requirement section specifically states that vehicle owners, as defined in the proposed amendment, must comply with the regulation. In addition, in- and out-of-state motor carriers, California brokers, or any California residents directing the operation of the vehicles must verify that each vehicle hired or dispatched are in compliance with the proposed amendment to this regulation. Staff also proposes that a CARB Certificate of Reported Compliance be created and provided to fleets that report and certify their compliance with CARB, and that brokers, motor carriers, and dispatchers, may keep this certificate for each fleet at their business location. Additionally, staff proposes to add a requirement for leasing contracts entered into after July 1, 2019 to specify the regulated party responsible for complying with the regulation.

The rationale supporting the proposed solution is that an certificate allows an easy method for fleets to provide brokers, dispatchers, and motor carriers with proof of compliance with the proposed amended regulation.

Requiring brokers, dispatchers, and motor carriers to only hire compliant fleets will ultimately result in ensuring emissions benefits from the proposed amendments and will help provide a level playing field to businesses that have invested significant capital to comply.

Requiring lease contracts to specify responsibility will allow fleets flexibility in identifying which party is responsible for complying with the regulation and ensuring clarity of the regulated party for CARB.

H. SECTION 2021.1 COMPLIANCE FOR AN OWNER OF SOLID WASTE COLLECTION VEHICLES

The problem is that most of the language describing the requirements for SWCVs is outdated and is no longer needed. Most of the language in existing section 2021.1 and 2021.2 is no longer needed and what is still needed can be combined into one section.

The proposed solution is to delete most of the text in former section 2021.1 and 2021.2 and to renumber the remaining text to include all of the compliance requirements that apply to SWCVs in one section (2021.1).

The rationale for the proposed solution is reduce confusion by removing unnecessary and outdated text and to simplify by including it in one section for SWCV compliance requirements.

I. SECTION 2021.2 COMPLIANCE REQUIREMENTS FOR HEAVY CRANES

A new subsection specific to heavy cranes is being added to address the unique situation for specialized cranes. Staff proposes to amend the SWCV regulation by adding Section 2021.3 to provide heavy cranes additional time to upgrade heavy cranes to 2010 or newer model year engines. A description of the problem, proposed solution and rationale for the change is described below.

The problem is that there is no existing language to describe compliance requirements for heavy cranes. With the limited ability to retrofit or repower and a replacement schedule in the Truck and Bus regulation that is the same as other trucks, these heavy cranes will likely not be able to meet the compliance requirements. This issue is described in more detail at the beginning of this Chapter.

The proposed solution is to add a new section that provides a nine year phased-in compliance option for heavy cranes beginning in 2019. This proposed schedule would require heavy cranes to be upgraded to 2010 or newer model year engines at a rate of 10 percent of the heavy cranes in the fleet per year, starting at 20 percent by January 1, 2019 and increasing by 10 percent each year until all cranes have been upgraded by January 1, 2027.

Staff is also proposing to provide credit for heavy cranes that are equipped with a retrofit or original equipment PM filter before January 1, 2018, by counting such heavy cranes as though they meet the proposed 2010 model year engine requirement and would be exempt from the replacement requirement. This phased-in requirement reinstates the same compliance requirements that crane owners were expected to meet prior the 2014 amendments to the Truck and Bus regulation were rescinded. The schedule is shown in Table 5 below. Vehicles designated as low-use vehicles would not be included in the heavy crane fleet size. Additionally, any heavy crane that had a PM filter installed prior to January 1, 2018, will be exempt from the requirement to upgrade to a 2010 model year or newer engine and will be treated as a 2010 model year engine that counts towards meeting the compliance requirement in Table 5.

Table 5: Heavy Crane Phase-In Schedule

Compliance Deadline as of January 1	Required Crane Fleet Upgrades to 2010 Model Year Engines			
	1 Crane	2 Cranes	3 Cranes	>=4 Cranes
2019			1	20%
2020		1		30%
2021				40%
2022	1		1	50%
2023				60%
2024				70%
2025		1		80%
2026			1	90%
2027				100%

The rationale supporting the proposed solution is that this schedule provides a feasible compliance option with sufficient time to gradually replace heavy cranes. This schedule recognizes the challenges with retrofitting and repowering existing cranes while meeting crane safety standards and the significantly higher costs of replacing this specialized equipment. This schedule is the same as the compliance schedule that is being rescinded and maintains a level playing field for all crane owners. These issues do not apply to other trucks.

J. SECTION 2021.2(A)(1)(A) CREDIT FOR HEAVY CRANES

At the workshops, stakeholders identified a concern relative to selling a vehicle that had earned this credit and not having the credit transferred to the new owner. As a result, staff are proposing that this credit be transferred when the vehicle is sold provided that documentation is submitted to CARB to confirm the engine was retrofitted prior to January 1, 2018. Applying the credit only to the initial owner substantially devalues the heavy crane.

K. SECTION 2021.2(3) HEAVY CRANE ENGINE MODEL YEAR SCHEDULE

Staff is also proposing an alternative compliance pathway. A heavy crane owner may comply with the replacement requirement based on the SB 1 “Useful Life” schedule. This would require heavy cranes with engine model years 1998 to 2003 to be upgraded or replaced with a 2010 or newer model year engine by January 1, 2019, engine model years 2004 to 2006 to be upgraded or replaced with a 2010 or newer model year engine by January 1, 2022, and engine model years 2007 to 2009 to be upgraded by January 1, 2025. This schedule is shown in Table 6 below. Heavy cranes with 2010 model year or newer engine are in compliance with the regulation and no further upgrade is needed.

Table 6: Heavy Crane Engine Model Year Schedule

Engine Year	Upgrade to 2010 Engine January 1
1998-2003	2019
2004-2006	2022
2007-2009	2025

L. REPORTING REQUIREMENTS 2021.3 (A)

The problem is that the SWCV regulation currently has no reporting requirements so CARB staff do not readily have the vehicle information needed to clearly identify and communicate to DMV, which vehicles are subject to the Truck and Bus regulation and which are not. Staff also need to identify heavy crane fleets to ensure compliance with the proposed replacement schedules described in Section 2021.3(c) or to take advantage of the proposed credits for early actions and to increase enforceability.

The proposed solution is to require SWCV fleets to report company and vehicle information about SWCVs with 1960 to 2006 model year engine and for heavy crane owners to report information about all of their cranes. Initial reporting of company and vehicle information would be required by July 1, 2019. Annual reporting of the desired compliance option and any upgrades made would be required. Any credits for heavy cranes that met the PM filter requirements by January 1, 2018, by installing a PM filter retrofit or purchasing a heavy crane with an OEM PM filter (typically 2007 to 2009 model year engines) must be reported by July 1, 2019, to receive the credit. Annual reporting of vehicle odometer readings and the date of the readings, miles driven in support of emergency operations, and the miles travelled outside California would be required of vehicles designated as “Low-Use vehicles” by January 31 of each subsequent year and odometer readings reported should represent a read date as close to January 1 as possible.

Additional annual reporting information would include:

- Key information about the fleet including company contact, vehicle, engine, compliance path, and retrofit (if applicable) information must be reported.
- When equipment is newly purchased or sold, the owner would have 30 days from the date of purchase, sale, or entry into the state, to inform CARB through reporting.
- When a vehicle is purchased at least four months prior to the compliance deadline of the compliance deadline year but is not received by the vehicle owner due to manufacturing delays beyond the fleet owner’s control, a temporary extension until May 1 of the compliance deadline year can be requested through reporting in January of the compliance year.

The rationale supporting proposed solution for SWCV fleets is to prevent delays in DMV registration by allowing CARB staff to correctly identify these vehicles for the DMV. Reporting heavy crane fleets allows CARB to effectively enforce the requirements and allows fleets to inform CARB of their desired compliance path.

M. SECTION 2021.3 (B) RECORD KEEPING REQUIREMENTS

The problem is that reported information needs to be checked periodically to ensure that the reported information can be verified periodically. CARB may need documentation and records from fleets in the future that date back longer than fleets may normally retain records to ensure compliance with selected options and for enforcement purposes.

The proposed solution is to modify existing record keeping requirements to ensure fleets maintain applicable fleet records and make them available to staff in a reasonable time period. Information required includes motor carrier or broker information, mileage if required, records of retired vehicles, records of vehicles that have been repowered, proof of emergency operations, and proof of fleet changes such as heavy cranes added or removed from the fleet. Staff also proposes to require fleets to maintain vehicle records for a period of three years after the vehicle is retired and fleet records until at least January 1, 2029, unless the fleet entity dissolved.

The rationale supporting the proposed solution is that staff needs the ability to request documentation from fleets and receive it in a reasonable time frame to ensure that compliance can be verified to ensure that fleets report accurate information. Accurate reporting is needed to ensure compliance with additional flexibility and to reduce time needed to enforce the proposed amendments. Robust enforcement results in achieving the expected emissions reductions. Additionally, fleets need a reasonable limit on such record keeping requirements to efficiently and effectively run their business.

XII. PUBLIC PROCESS FOR DEVELOPMENT OF THE PROPOSED ACTION

Consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and with the Board's long-standing practice, CARB staff held public workshops at places and times convenient to stakeholders and had other meetings with interested persons during the development of the proposed regulation. Workshops were held in Sacramento on September 19, 2018, and in Diamond Bar on September 21, 2018, to encourage public participation. The Sacramento workshop was webcast to provide on-line viewing and the ability to submit questions remotely. These informal pre-rulemaking discussions provided staff with useful information that was considered during development of the regulation that is now being proposed for formal public comment.

Staff offered the California public opportunities after the workshops to learn about and comment on the proposed SWCV regulatory amendments and provide requested data. CARB staffs a toll-free hotline and maintains a webpage that provides owners immediate regulatory assistance with existing compliance requirements.

Notices and meeting details were posted to CARB's SWCV webpage and e-mailed to subscribers of the SWCV listserv. In addition, SWCV contractors, all heavy crane fleet owners currently reported in TRUCRS, and heavy crane industry representatives were notified. Attendees included representatives from heavy crane industry groups, SWCV fleets, and other parties. Individuals were encouraged to provide data, review portions of the draft regulation. At that time, stakeholders were asked to sign up for the SWCV listserv if they wanted to be notified of upcoming SWCV program events and information.

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