Port of
LONG BEACH
THE PORT OF CHOICE

AIR EMISSIONS INVENTORY - 2023

Prepared by:
STARCREST CONSULTING GROUP, LLC

August 2024

Port of Long Beach
2023 Air Emissions Inventory

Prepared for:

Port of LONG BEACH THE PORT OF CHOICE

August 2024

Prepared by:

Starcrest Consulting Group, LLC
Long Beach, CA

STARCREST CONSULTING GROUP, LLC
ENVIRONMENTAL MANAGEMENT
AIR QUALITY • CLIMATE • SUSTAINABILITY

ACKNOWLEDGEMENTS

The following individuals and their respective companies and organizations assisted with providing the technical and operational information described in this report, or by facilitating the process to obtain this information. We truly appreciate their time, effort, expertise, and cooperation. The Port of Long Beach and Starcrest Consulting Group, LLC (Starcrest) would like to recognize and thank the following individuals:

Stephen Shahnazarian, American Marine
Milt Merritt, Amnav
Shawn Bennett, Bay Delta Maritime
Greg Bombard, Catalina Express
Rich Pruitt, Carnival Cruise Lines
David Scott, Connolly-Pacific
Halfdan Ross, International Transportation Service (ITS)
Captain Thomas Jacobsen, Jacobsen Pilot Service
Bonnie Nixon, Long Beach Container Terminal
Rob Wolters, Long Beach Container Terminal
Joe Lockhart, Metro Cruise Services
Otis Cliatt, Pacific Harbor Line
Greg Peters, Pacific Harbor Line
Porter Travis, PCMC
Grant Westmoreland, Pacific Tugboat Service
Allie Bond, SA Recycling
Matt Sullivan, SSA
Ilya Kaler, Total Terminals International (TTI)
Rakshita Dissanayake, Weyerhaeuser

ACKNOWLEDGEMENTS (CONT'D)

The Port of Long Beach and Starcrest would like to thank the following reviewers who contributed, commented, and coordinated the approach and reporting of the emissions inventory:

Cory Parmer, California Air Resources Board
Nancy Bui, California Air Resources Board
Brian Choe, South Coast Air Quality Management District
Sang Mi Li, South Coast Air Quality Management District
Elaine Shen, South Coast Air Quality Management District
Francisco Dóñez, U.S. Environmental Protection Agency

Starcrest would like to thank the following Port of Long Beach staff members for assistance during the development of the emissions inventory:

Morgan Caswell
Zannatul Zannat
Heather Tomley

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EXECUTIVE SUMMARY

In 2023, the Port of Long Beach (Port) handled 8 million twenty-foot equivalent units (TEUs), lower than the 9 million TEUs record cargo volume in 2022, as the Port returned to pre-pandemic operations and cargo volumes. The lower cargo volumes, increased participation in Port policies and regulatory emissions strategies implemented at the start of 2023 resulted in overall lower emissions in 2023. In addition to comparison to the previous year and 2005, a comparison to the 2017 calendar year is included in this report to show the emission reductions achieved since the 2017 CAAP Update.

Emissions Comparison to Previous Year

Containerized cargo throughput was 12% lower in 2023 compared to 2022. The average numbers of TEUs (11,168) per call was higher in 2023 while total containership calls were lower than the previous year (-20%). The total number of arrivals were only 9% lower than the previous year due to more tankers and other non-containership vessels calling the Port in 2023.

Table ES.1: 2022-2023 Container Throughput and Vessel Call Comparison

Year	Container Throughput (TEU)	All Arrivals	Containership Arrivals	Average TEU per Call
2022	9,133,657	2,068	901	10,137
2023	8,018,668	1,879	718	11,168
Change (%)	**-12%**	**-9%**	**-20%**	**10%**

[1] *www.polb.com/environment/air/#emissions-inventory*

Table ES.2 compares the 2023 emissions to the previous year which shows emissions were lower across the board in 2023, except for harbor craft SO_x and CO_2e emissions.

Table ES.2: 2022-2023 Air Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
2022								
Ocean-going vessels	85	78	45	3,739	186	334	143	349,848
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	9	9	8	244	2	1,148	40	133,133
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**124**	**115**	**83**	**5,533**	**192**	**1,990**	**264**	**966,839**
2023								
Ocean-going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**
Change between 2022 and 2023 (percent)								
Ocean-going vessels	-12%	-12%	-15%	-17%	-11%	-13%	-13%	-12%
Harbor craft	-21%	-21%	-21%	-7%	8%	-2%	-3%	3%
Cargo handling equipment	-27%	-27%	-28%	-35%	-26%	-33%	-30%	-26%
Locomotives	0%	0%	0%	-1%	-3%	-3%	0%	-3%
Heavy-duty vehicles	-36%	-36%	-37%	-56%	-19%	-24%	-24%	-19%
Total	**-12%**	**-13%**	**-14%**	**-21%**	**-11%**	**-25%**	**-15%**	**-16%**

Please note that the 2022 OGV and CHE emissions were re-estimated to account for methodology improvements. The 2022 OGV emissions were re-estimated mainly to include the latest LNG emission factors and reclassification of B&W engines from non-MAN engines to MAN engines. The 2022 CHE emissions were re-estimated with updated renewable diesel control factors.

Highlights for 2023 as compared to the previous year are:

- ✓ Vessel arrivals and counts at anchorage were 9% lower and shifts were 17% lower in 2023 which resulted in lower ocean-going vessels (OGV) emissions compared to previous year. In addition, vessels spent less time at berth and anchorage in 2023 as compared to 2022.
- ✓ More Tier III vessels in 2023 resulted in lower NO_x emissions for OGV.
- ✓ Shore power use was higher in 2023.

- ✓ Per Port CAAP policy requiring newer trucks, truck calls for 2014 model year and newer increased to 86% in 2023 as compared to 64% in 2022 which resulted in lower NO_x and PM emissions for trucks.
- ✓ For harbor craft, the use of renewable diesel by all harbor craft operating at the Port in 2023 for the first time, lowered emissions for various pollutants from the previous year. CARB's Commercial Harbor Craft (CHC) Regulation went into effect January 2023 requiring the use of renewable diesel, new reporting and compliance dates for harbor craft in California.
- ✓ For harbor craft, SO_x and CO_2e emissions are higher due to the addition of various barges to the 2023 inventory as data collection expands to include all barge calls to the Port with better access to barge call information for companies that may not be a tenant of the Port. There is no SO_x reduction and a small CO_2e reduction from the use of renewable fuel.
- ✓ For CHE, most of the container terminals' equipment used renewable diesel in 2023 which mainly lowers CO_2 emissions for Tier 4 engines. Only tailpipe emissions reductions are accounted for in this inventory.
- ✓ More zero-emission (ZE) cargo handling equipment in use in 2023 than in 2022.
- ✓ Use of renewable diesel by switching locomotives in 2023 for the first time.
- ✓ For locomotives, the emissions remained similar to the previous year. The switching locomotives used renewable diesel for the first time in 2023.
- ✓ Lower TEU cargo throughput (-12%) resulted in lower activity which results in lower emissions for OGV, cargo handling equipment and heavy-duty vehicles in 2023 as compared to the previous year.

In 2023, anchorage calls are 9% lower compared to 2022 with containerships continuing to see a significant decrease in vessels at anchorage. As a result of the lower anchorage calls, there were also fewer shifts (-17%) in 2023 as compared to 2022.

Table ES.3: 2022-2023 Anchorage Calls Comparison

Vessel Type	2022 Anchorage	2023 Anchorage	2022-2023 Change
Containership	167	59	-65%
Tanker	690	742	8%
Cruise	1	2	100%
Bulk Carrier	246	172	-30%
Auto Carrier/RoRo	8	13	63%
General cargo	26	42	62%
Total	**1,138**	**1,030**	**-9%**

Emissions Comparison to Baseline Year

Table ES.4 summarizes and compares vessel arrivals and containerized TEU at POLB in 2005 and 2023. Relative to 2005 levels, containerized cargo throughput is up 20%, while containership arrivals to POLB are down 46%. Indicative of the larger vessels calling at POLB since 2005, the average number of TEU per vessel call more than doubled in 2023 as compared to 2005 with an average 11,168 TEU per containership call.

Table ES.4: 2005-2023 Container Throughput and Vessel Call Comparison

Year	Container Throughput (TEU)	All Arrivals	Containership Arrivals	Average TEU per Call
2005	6,709,818	2,617	1,332	5,037
2023	8,018,668	1,879	718	11,168
Change (%)	**20%**	**-28%**	**-46%**	**122%**

The Port of Long Beach 2023 Air Emissions Inventory results and a comparison to the Port's baseline 2005 air emissions inventory are presented in Table ES.5. Overall, criteria pollutant and GHG emissions are lower when comparing 2023 to 2005. The harbor craft GHG emissions are slightly higher in 2023 as compared to 2005 due to the addition of barges to the 2023 inventory which increased activity. The 2005 OGV emissions were re-estimated for the reclassification of B&W engines.

Table ES.5: 2005-2023 Air Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
2005								
Ocean-going vessels	840	673	569	6,676	6,815	463	224	385,219
Harbor craft	36	35	36	699	3	225	54	35,005
Cargo handling equipment	33	30	33	1,165	11	363	75	103,717
Locomotives	43	40	43	1,273	76	179	66	60,579
Heavy-duty vehicles	205	196	205	5,273	37	1,523	318	391,610
Total	**1,157**	**974**	**887**	**15,085**	**6,943**	**2,752**	**738**	**976,130**
2023								
Ocean-going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**
Change between 2005 and 2023 (percent)								
Ocean-going vessels	-91%	-90%	-93%	-53%	-98%	-37%	-44%	-20%
Harbor craft	-85%	-85%	-85%	-58%	-88%	-73%	-77%	2%
Cargo handling equipment	-79%	-79%	-83%	-86%	-90%	113%	-63%	-5%
Locomotives	-56%	-57%	-56%	-60%	-99%	-33%	-56%	-31%
Heavy-duty vehicles	-98%	-99%	-99%	-94%	-92%	-84%	-90%	-16%
Total	**-91%**	**-90%**	**-92%**	**-71%**	**-98%**	**-46%**	**-70%**	**-17%**

The criteria pollutant reductions over the last 18 years continued to be significant despite a 20% increase in TEU throughput in 2023 as compared to 2005. Several factors contributed to the lower emissions between 2005 and 2023:

- For OGVs, the 2023 emissions were lower compared to 2005 due to fuel switching, shore power, fewer vessel calls, newer vessels, high participation in the Port's Green Flag Program that incentivizes shipping lines to slow down within 20 and 40 nautical miles, introduction of LNG fuel used by vessels, and the Port's Green Ship Incentive Program, which incentivizes high performing vessels as defined by the Environmental Ship Index (ESI) scores with a bonus incentive for those vessels utilizing Tier III engines. In 2023, 11% of the vessel calls had engines meeting the Tier III NO_x emission standard which is 75% cleaner than the Tier II engine standard. The fewer vessel calls, cleaner vessels, and use of shore power at berth had a positive impact on CO_2e emissions with lower CO_2e emissions in 2023 as compared to 2005 despite a 20% increase in container throughput.

- For harbor craft, the 2023 emissions were lower than 2005 emissions due to the repowers that have occurred as required by the original CARB Commercial Harbor Craft Regulation (prior to amendments which became effective in 2023), funding incentives, removal of older vessels due to attrition, and more efficient operations. In 2023, there were 20 Tier 4 engines in the inventory and all vessels used renewable diesel for the first time. There are no CO_2 standards for engines or control measures for harbor craft, therefore, the CO_2e emissions change along with activity trend.

- For cargo handling equipment (CHE), the 2023 emissions were lower compared to 2005 due to implementation of CAAP measures requiring equipment to meet Tier 4 engine standards through leases. CARB's Cargo Handling Equipment Regulation that also phased in Tier 4 CHE, along with funding incentives, resulted in replacement of older equipment with cleaner units, retrofits, and repowers. Replacement of older equipment combined with improved efficiency in operations led to lower emissions. The increase in CO emissions from cargo handling equipment is attributed to increased usage of several gasoline-fueled equipment with higher CO emission rates compared to diesel equipment. In 2023, the equipment at container terminals continue to use renewable diesel which has a significantly lower carbon intensity than conventional diesel when taking into consideration the full life cycle of fuel. In this report, only tailpipe emissions reductions from renewable diesel use are accounted for in the GHG emissions results.

- For locomotives, the 2023 emissions are lower compared to 2005 due to decreases in fleet-wide emissions from line haul locomotives due to rail companies meeting the terms of the memorandum of understanding (MOU) with CARB that resulted in Tier 2 locomotive fleet average emissions by 2010, and the replacement of older switching locomotives with new low-emission and ultra-low emission switchers.

- For HDV, 2023 emissions are lower compared to 2005 due to the implementation of the final phase of the Port's Clean Truck Program (CTP), which resulted in substantial turnover of older trucks to newer and cleaner trucks as compared to 2005. More recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer. The share of mileage driven by 2014 and newer model year trucks increased to 86% in 2023 which shows the impact of the Port Tariff on the drayage trucks working at the Port.

Emissions Comparison to 2017

Table ES.6 summarizes and compares vessel arrivals and containerized TEU at POLB in 2017 and 2023. TEU throughput was 6% higher in 2023 as compared to 2017, while the containership calls were 25% lower in 2023 as compared to 2017 due to larger vessels with more TEU capacity in 2023 than in 2017.

Table ES.6: 2017-2023 Container Throughput and Vessel Call Comparison

Year	Container Throughput (TEU)	All Arrivals	Containership Arrivals	Average TEU per Call
2017	7,544,507	2,157	959	7,867
2023	8,018,668	1,879	718	11,168
Change (%)	**6%**	**-13%**	**-25%**	**42%**

Table ES.7 presents the 2023 and 2017 emissions comparison by source category. Emissions for all pollutants decreased for ocean-going vessels and locomotives in 2023 as compared to 2017. For the other source categories, emissions decreased except for harbor craft and HDV SO_x, CHE and HDV CO, and HDV CO_2e emissions.

Table ES.7: 2017-2023 Air Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
2017								
Ocean-going vessels	80	73	47	4,312	208	337	146	315,522
Harbor craft	8	7	8	385	0	65	15	35,777
Cargo handling equipment	9	8	9	386	1	540	43	115,794
Locomotives	22	20	22	617	1	151	33	53,284
Heavy-duty vehicles	6	6	6	985	3	191	45	305,482
Total	**125**	**115**	**91**	**6,686**	**213**	**1,285**	**281**	**825,858**
2023								
Ocean-going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**
Change between 2017 and 2023 (percent)								
Ocean-going vessels	-7%	-7%	-18%	-28%	-21%	-13%	-14%	-2%
Harbor craft	-30%	-29%	-30%	-23%	5%	-8%	-17%	0%
Cargo handling equipment	-26%	-26%	-34%	-59%	-14%	43%	-35%	-15%
Locomotives	-15%	-13%	-15%	-18%	-20%	-21%	-12%	-22%
Heavy-duty vehicles	-48%	-48%	-48%	-68%	6%	29%	-32%	7%
Total	**-13%**	**-13%**	**-22%**	**-34%**	**-20%**	**16%**	**-20%**	**-2%**

Several factors contributed to lower emissions in 2023 compared to 2017 and the major highlights by source category include:

- For OGVs, emissions in 2023 were lower than 2017 emissions due to fewer vessel calls, increase in shore power, Port's Environmental Ship Index (ESI) Incentive Program, the Port's Green Flag Program, and newer Tier III vessels.

- For harbor craft, emissions in 2023 were lower than 2017 emissions due to use of renewable diesel by all harbor craft, the repowers that occurred in the last few years as required by the CARB In-Use Harbor Craft Regulation or funding incentives, removal of older vessels due to attrition resulting into cleaner fleet. The SO_x emissions are higher in 2023 than 2017 due to additional barge calls included in the 2023 inventory per CARB CHC Regulation and better data collection.

- For CHE, emissions in 2023 were lower than 2017 emissions due to lower activity and cleaner equipment as a result of implementation of CAAP measures and CARB's Cargo Handling Equipment Regulation, along with funding incentives to replace older equipment with cleaner units, retrofits, and repowers. The increased use of hybrid equipment, such as hybrid RTG cranes, has also helped lower the emissions. The CO emissions are higher in 2023 than 2017 due to the addition of propane and gasoline equipment which have higher CO emissions compared to diesel equipment.

- For locomotives, emissions in 2023 were lower than 2017 emissions due to the decreases in fleet-wide emissions from line haul locomotives meeting the terms of the memorandum of understanding (MOU) with CARB, use of renewable diesel, and the replacement of older switching locomotives with new low-emission and ultra-low emission switchers.

- For HDV, emissions in 2023 were lower than 2017 emissions due to implementation of the final phase of the Port's Clean Truck Program (CTP) resulting in significant turnover of older trucks to newer and cleaner trucks as compared to 2017. More recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer. The CO, SO_x and CO_2 emissions were higher in 2023 than 2017 due to higher activity and lack of stringent emission standards compared to PM and NO_x standards.

Emissions Metrics

To track operational efficiency improvements and the effectiveness of the emissions reduction strategies and measures, emissions are also estimated in total emissions per unit of cargo handled through the Port. Table ES.8 compares the tons of emissions per 10,000 TEU in 2005, 2017, 2022 and 2023. The percent difference is based on values with more decimal points than the table shows.

Table ES.8: Emissions Efficiency Metric Comparison, tons per 10,000 TEU

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2005	1.72	1.45	1.32	22.48	10.35	4.10	1.10	1,455
2017	0.17	0.15	0.12	8.86	0.28	1.70	0.37	1,095
2022	0.14	0.13	0.09	6.06	0.21	2.18	0.29	1,059
2023	0.14	0.12	0.09	5.48	0.21	1.86	0.28	1,013
CAAP Progress	**-92%**	**-91%**	**-93%**	**-76%**	**-98%**	**-55%**	**-75%**	**-30%**
2023 vs 2017	**-18%**	**-18%**	**-27%**	**-38%**	**-25%**	**9%**	**-25%**	**-7%**
Previous Year	**-0.7%**	**-0.7%**	**-3%**	**-10%**	**1%**	**-15%**	**-3%**	**-4%**

Progress Towards CAAP Goals

Tables ES.9 and ES.10 summarize the air emissions reductions of DPM, NO_x, and SO_x associated with goods movement sources and compared to the established CAAP San Pedro Bay (SPB) Emissions Reduction Standards for 2014 and 2023 from the baseline year 2005.

As a result of the implementation of CAAP measures and regulations, 2023 emission reduction levels of DPM, NO_x and SO_x surpassed the 2023 SPB Emission Reduction Standards.

Table ES.9: 2023 Emissions Reductions Compared to San Pedro Bay CAAP

Pollutant	2023 Actual Reductions	2023 Emission Reduction Standard
DPM	92%	77%
NO_x	71%	59%
SO_x	98%	93%

The major factors contributing to the lower emissions over the years for the various pollutants include:

- Fuel Switching for all source categories, but mainly OGV which originally used residual diesel fuel with an average 2.7% sulfur content. OGV switched to marine gas oil (MGO) or marine diesel oil (MDO) fuel with 1% sulfur in 2012 and 0.1% sulfur in 2015. For harbor craft, CHE, HDV, and locomotives, ultra-low sulfur diesel (ULSD) has been used since 2006 and 2007 timeframe.

- Various OGV programs and regulations that further reduced emissions are the use of at-berth shore power and the VSR and ESI incentive programs that occurred in a phased approach. The introduction of Tier III vessels as well as use of alternative fuel (LNG and methanol) also contributed to the lower emissions.

- CARB Harbor Craft Regulation and funding incentives led to vessel repowers which lowered emissions for harbor craft. Vessel attrition over the course of the past 15+ years and the use of renewal diesel fuel per CARB's latest HC regulation also contributed.

- Cleaner CHE fleet over the years due to CAAP measures and CARB's CHE Regulation which occurred mainly between 2007 and 2015. Introduction of hybrid and zero emission equipment in the fleet and CARB's Large Spark Ignition (LSI) Regulation which impacted the propane forklifts between 2007 and 2010 also contributed.

- For locomotives, EPA regulations that started in 2010 and phased in through 2015, in addition to CARB's statewide MOU and SPBP CAAP PHL Rail Switch Engine Modernization measure in 2010, decreased the locomotive emissions between 2010 to present.

- For HDV, emission reductions have occurred in a phased approach starting with EPA/CARB emission standards for new 2007+ trucks in 2007 and 2010 and CARB's Drayage Truck Regulation which started in 2009 in a phased approach. The SPBP CAAP phased measures started in 2008 including the 2012 implementation of the final phase of the Port's Clean Truck Program (CTP) which stipulated trucks operating at SPBP must have 2007 or newer engines. Most recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer.

Table ES.10: 2005-2023 Emissions Reductions Compared to San Pedro Bay CAAP by Source Category

Category	2005		2023
DPM (tons)			
Ocean-going vessels	569		38
Harbor craft	36		5
Cargo handling equipment	33		6
Locomotives	43		19
Heavy-duty vehicles	205		3
Total	**887**		**71**
Cumulative DPM Emissions Reduction Achieved in 2023			**92%**
CAAP San Pedro Bay DPM Emissions Reduction Standards		**2023**	**77%**
NO_x (tons)			
Ocean-going vessels	6,676		3,120
Harbor craft	699		296
Cargo handling equipment	1,165		159
Locomotives	1,273		503
Heavy-duty vehicles	5,273		316
Total	**15,085**		**4,394**
Cumulative NO_x Emissions Reduction Achieved in 2023			**71%**
CAAP San Pedro Bay NO_x Emissions Reduction Standards		**2023**	**59%**
SO_x (tons)			
Ocean-going vessels	6,815		165
Harbor craft	3		0
Cargo handling equipment	11		1
Locomotives	76		0
Heavy-duty vehicles	37		3
Total	**6,943**		**170**
Cumulative SO_x Emissions Reduction Achieved in 2023			**98%**
CAAP San Pedro Bay SO_x Emissions Reduction Standards		**2023**	**93%**

SECTION 1 INTRODUCTION

The Port of Long Beach (Port or POLB) annual activity-based emissions inventories serve as the primary tool to track the Port's efforts to reduce air emissions from goods movement-related sources through implementation of measures identified in the San Pedro Bay Ports Clean Air Action Plan (CAAP) and regulations promulgated at the state and federal levels. To quantify the annual air emissions, the Port relies on operational information provided by Port tenants and operators. Development of the annual air emissions estimates is coordinated with a technical working group (TWG) comprised of representatives from the Port, the Port of Los Angeles, and the following air regulatory agencies: U.S. Environmental Protection Agency, Region 9 (EPA), California Air Resources Board (CARB), and the South Coast Air Quality Management District (South Coast AQMD). Emissions estimated in this report are consistent with CARB and U.S. EPA published methodologies. As additional data is gathered, the Port plans to collaborate with TWG to update alternative fuel emission factors, reductions associated with the use of renewable diesel, and OGV emission changes with engine load, if deemed appropriate.

Emissions from the following goods movement-related emission source categories are evaluated:

- Ocean-going vessels (OGV)
- Harbor craft
- Cargo handling equipment (CHE)
- Rail locomotives
- Heavy-duty vehicles (HDV)

Exhaust emissions of the following pollutants, including greenhouse gases, are quantified in the inventory:

- Particulate matter (PM) (10-micron, 2.5-micron)
- Diesel particulate matter (DPM)
- Oxides of nitrogen (NO_x)
- Oxides of sulfur (SO_x)
- Hydrocarbons (HC)
- Carbon monoxide (CO)
- Carbon dioxide equivalent (CO_2e)

Greenhouse gas (GHG) emissions are presented in units of metric tons (MT) of carbon dioxide equivalents, which weight each gas by its global warming potential (GWP) value relative to CO_2. To normalize these values into a single greenhouse gas value, CO_2e, the GHG emission estimates are multiplied by the following values and summed.[2]

- CO_2 – 1
- CH_4 – 25
- N_2O - 298

Geographical Domain

Figure 1.1 shows the Port of Long Beach emissions inventory domain. For rail locomotives and on-road trucks, emissions are estimated from the Port to the cargo's first point of rest within the South Coast Air Basin (SoCAB) or up to the basin boundary, whichever comes first.

For OGV and harbor craft, the domain includes berths and waterways in the Port proper and all vessel movements within the 40-nautical mile (nm) arc from Point Fermin. The northern boundary is the Ventura County line, and the southern boundary is the Orange County line. It should be noted that although the overwater boundary for the South Coast air quality modeling domain extends further off the coast, most of the vessel movements occur within the 40 nm arc. Vessels that pass through the domain, but do not call on the Port are excluded from the inventory.

[2] U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019*, EPA 430-R-21-005, published 2021.

The Hawaiian, western and southern routes extend beyond the 40 nm arc into the outer part of the South Coast air quality modeling domain. For the western and southern routes, this emissions inventory covers the majority of the emissions as most of the vessel movements occur within the 40-nm arc. For the Hawaiian route, this emissions inventory domain includes the additional SoCAB over-water boundary emissions that extends past the 40 nm mile arc.

Figure 1.1: Port of Long Beach Emissions Inventory Domain

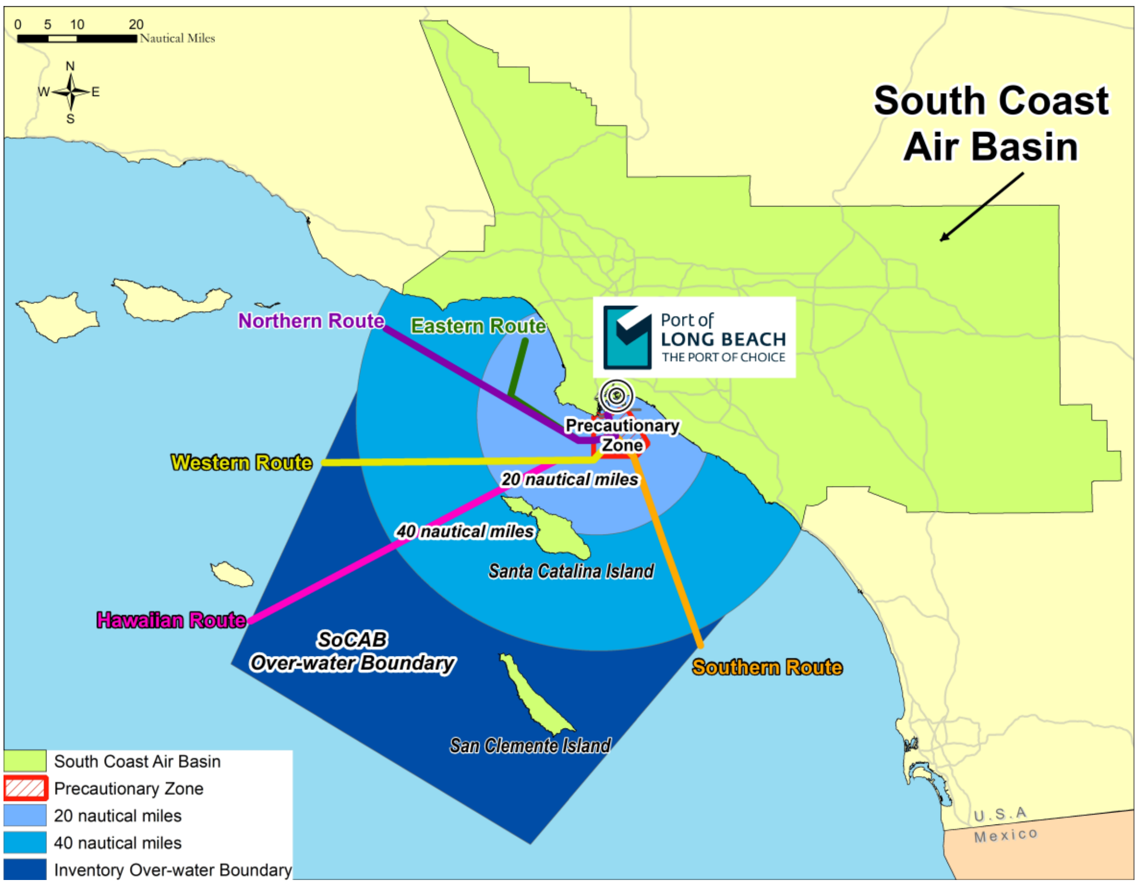

Figure 1.2 shows the location of the anchorage areas for San Pedro Bay Ports. The orange shading shows the POLB terminals. The green areas are the known anchorage areas. Vessel emissions at anchorage are included in the air emissions inventory report as part of the OGV emissions. The Precautionary Area, labeled as precautionary zone, is an area where ships must navigate with particular caution. The northern and southern shipping lanes in the USCG include a Separation Zone to separate opposing traffic lanes by 1 to 2 miles within each sector.

Figure 1.2: Anchorage Areas

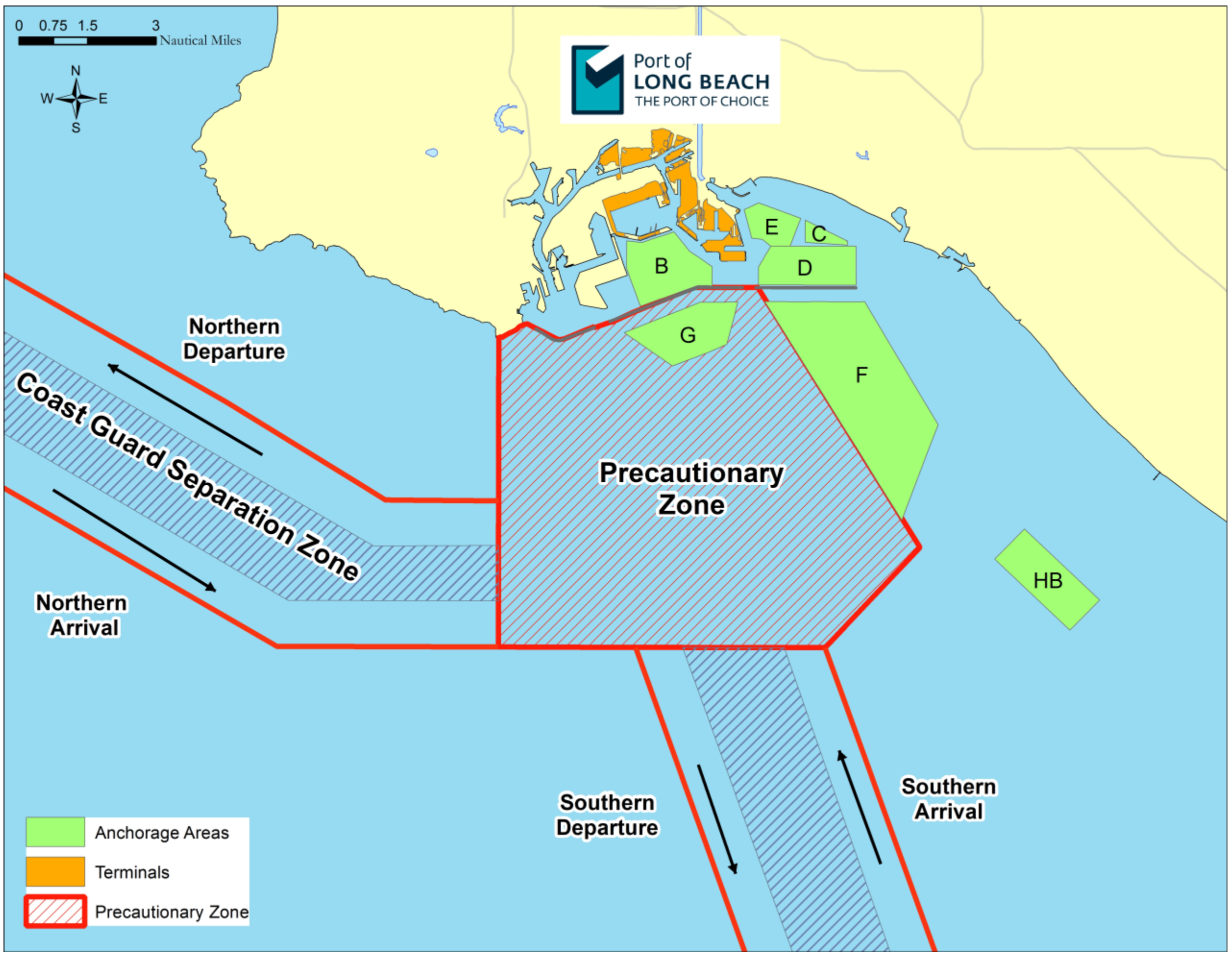

Figure 1.3 shows the land area of active Port terminals in 2023. The geographical domain for cargo handling equipment is the terminals and facilities on which they operate.

Figure 1.3: Port of Long Beach Terminals

SECTION 2 OCEAN-GOING VESSELS

Source Description

Vessels are grouped by the type of cargo they transport:

- Auto carrier
- Bulk carrier
- Containership
- Cruise vessel
- General cargo
- Reefer vessel
- Roll-on roll-off vessel (RoRo)
- Tanker

Emissions are estimated from vessel main engines (propulsion), auxiliary engines, and auxiliary boilers (boilers). For 2023, containerships and tankers continued to be the predominant vessels with 64% of total movements.

Emissions Estimation Methodology

The methodology to estimate 2023 emissions from OGVs is described in Section 2 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. The following updates were made in estimating 2023 OGV emissions:

- Added methanol emission factors to estimate emissions for vessels that switched to methanol fuel while operating in the Port's emissions inventory domain.
- Updated LNG emission factors for vessels that switched to LNG fuel to reflect the use of marine gas oil (MGO) as pilot fuel.
- Updated auxiliary engine and auxiliary boiler default loads using the Port's Vessel Boarding Program (VBP) data collected since the completion of the 2022 EI.
- Updated emissions estimation methodology for vessels that used alternative shore power systems based on CARB's latest At-Berth Regulation.
- Reclassified engines listed as "B&W" from non-MAN engines to MAN engines.

In 2023, there were 7 vessels (59 arrivals) that used LNG fuel and 1 vessel used methanol fuel. The LNG vessels included four auto carriers and three containerships (2,000-4,000 TEU). LNG and methanol EFs shown in the tables below are composite of LNG and MGO EFs weighted based on pilot fuel to main fuel proportions.

LNG capable vessel operators were contacted to find out if they used LNG in 2023 for any or all of their port calls. For vessels that used LNG, the operators reported switching from LNG to traditional fuels in the main engine before slowing down to approach the port but were able to run the auxiliary engines and boiler, as needed, on LNG throughout the emissions inventory domain. On average, LNG fuel was used with 3.5% of MGO fuel for pilot fuel.

Tables 2.1 and 2.2 list the emission factors for engines and steam boilers using LNG and pilot fuels. The 100% LNG fuel emission factors are taken from EPA's Ports EI Guidance for most pollutants and IMO 4th GHG report for SO_x emission factor.

Table 2.1: Emission Factors for Propulsion Engines and Steam Boilers using LNG fuel and 3.5% of MGO as Pilot Fuel, g/kWh

Engine Category	IMO Tier	Range Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Slow speed propulsion	Tier 0	1999 and older	0.035	0.033	0.006	1.85	0.018	1.30	0.02	461.3	0.029	0.00
Slow speed propulsion	Tier I	2000 to 2011	0.035	0.033	0.006	1.81	0.018	1.30	0.02	461.3	0.029	0.00
Slow speed propulsion	Tier II	2011 to 2016	0.035	0.033	0.006	1.76	0.018	1.30	0.02	461.3	0.029	0.00
Slow speed propulsion	Tier III	2016 and newer	0.035	0.033	0.006	1.37	0.018	1.30	0.02	461.3	0.029	0.00
Medium speed propulsion	Tier 0	1999 and older	0.035	0.033	0.007	1.72	0.019	1.29	0.02	463.5	0.029	0.00
Medium speed propulsion	Tier I	2000 to 2011	0.035	0.033	0.007	1.68	0.019	1.29	0.02	463.5	0.029	0.00
Medium speed propulsion	Tier II	2011 to 2016	0.035	0.033	0.007	1.62	0.019	1.29	0.02	463.5	0.029	0.00
Medium speed propulsion	Tier III	2016 and newer	0.035	0.033	0.007	1.35	0.019	1.29	0.02	463.5	0.029	0.00
Steam boilers	na	na	0.035	0.032	0.000	1.32	0.026	1.26	0.00	474.2	0.075	0.00

Table 2.2: Emission Factors for Auxiliary Engines using LNG fuel and 3.5% of MGO as Pilot Fuel, g/kWh

Engine Category	IMO Tier	Range Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Medium speed Auxiliary	Tier 0	1999 and older	0.035	0.033	0.007	1.74	0.02	1.29	0.01	464.9	0.029	0.00
Medium speed Auxiliary	Tier I	2000 to 2011	0.035	0.033	0.007	1.68	0.02	1.29	0.01	464.9	0.029	0.00
Medium speed Auxiliary	Tier II	2011 to 2016	0.035	0.033	0.007	1.62	0.02	1.29	0.01	464.9	0.029	0.00
Medium speed Auxiliary	Tier III	2016 and newer	0.035	0.033	0.007	1.35	0.02	1.29	0.01	464.9	0.029	0.00
High speed Auxiliary	Tier 0	1999 and older	0.036	0.033	0.01	1.64	0.02	1.29	0.01	464.9	0.029	0.00
High speed Auxiliary	Tier I	2000 to 2011	0.036	0.033	0.01	1.60	0.02	1.29	0.01	464.9	0.029	0.00
High speed Auxiliary	Tier II	2011 to 2016	0.036	0.033	0.01	1.52	0.02	1.29	0.01	464.9	0.029	0.00
High speed Auxiliary	Tier III	2016 and newer	0.036	0.033	0.01	1.32	0.02	1.29	0.01	464.9	0.029	0.00

One methanol fueled vessel, a chemical tanker, called the Port for the first time in 2023. Methanol capable vessels' operators were also contacted, and for the vessels that did use methanol, operators reported that methanol was only used in the main engines for engine loads 15% or higher. Auxiliary engines and boilers in the methanol powered vessels operated on traditional fuels (MGO). On average, methanol fuel was used with 5% of MGO fuel for pilot fuel. Table 2.3 lists the emission factors for propulsion engines. The 100% methanol fuel-based emission factors are taken from IMO's 4th GHG report.

Table 2.3: Emission Factors for Propulsion Engines using Methanol fuel and 5% of MGO as Pilot Fuel, g/kWh

Engine Category	IMO Tier	Range Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Slow speed propulsion	Tier 0	1999 and older	0.009	0.008	0.009	17.0	0.018	0.07	0.03	468.8	0.001	0.001
Slow speed propulsion	Tier I	2000 to 2011	0.009	0.008	0.009	16.0	0.018	0.07	0.03	468.8	0.001	0.001
Slow speed propulsion	Tier II	2011 to 2016	0.009	0.008	0.009	14.4	0.018	0.07	0.03	468.8	0.001	0.001
Slow speed propulsion	Tier III	2016 and newer	0.009	0.008	0.009	3.4	0.018	0.07	0.03	468.8	0.001	0.001
Medium speed propulsion	Tier 0	1999 and older	0.009	0.009	0.009	13.2	0.020	0.06	0.03	516.2	0.001	0.001
Medium speed propulsion	Tier I	2000 to 2011	0.009	0.009	0.009	12.2	0.020	0.06	0.03	516.2	0.001	0.001
Medium speed propulsion	Tier II	2011 to 2016	0.009	0.009	0.009	10.5	0.020	0.06	0.03	516.2	0.001	0.001
Medium speed propulsion	Tier III	2016 and newer	0.009	0.009	0.009	2.6	0.020	0.06	0.03	516.2	0.001	0.001

Tables 2.4 through 2.6 list the emission factors for propulsion engines, auxiliary boilers, and auxiliary engines using 0.1% sulfur marine gas oil (MGO) fuel, respectively. The emission factors are per EPA's Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions (September 2020)[3].

Table 2.4: OGV Emission Factors for Propulsion Engines using 0.1% S, g/kWh

Engine Category	Tier	Model Year Range	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Slow speed propulsion	Tier 0	1999 and older	0.184	0.169	0.184	17.0	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier I	2000 to 2011	0.184	0.169	0.184	16.0	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier II	2011 to 2016	0.184	0.169	0.184	14.4	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier III		0.184	0.169	0.184	3.4	0.362	1.4	0.6	593	0.029	0.012
Medium speed propulsion	Tier 0	1999 and older	0.187	0.172	0.187	13.2	0.401	1.1	0.5	657	0.029	0.01
Medium speed propulsion	Tier I	2000 to 2011	0.187	0.172	0.187	12.2	0.401	1.1	0.5	657	0.029	0.01
Medium speed propulsion	Tier II	2011 to 2016	0.187	0.172	0.187	10.5	0.401	1.1	0.5	657	0.029	0.01
Medium speed propulsion	Tier III	2016 and newer	0.187	0.172	0.187	2.6	0.401	1.1	0.5	657	0.029	0.01
Gas turbine	na	All	0.010	0.009	0.000	5.7	0.587	0.2	0.1	962	0.075	0.002
Steam propulsion	na	All	0.160	0.147	0.000	2.0	0.587	0.2	0.1	962	0.075	0.002

Table 2.5: Emission Factors for Auxiliary Boilers using 0.1% S, g/kWh

Engine Category	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Steam boilers	0.202	0.186	0	1.97	0.587	0.2	0.1	962	0.075	0.002

[3] *www.epa.gov/state-and-local-transportation/port-emissions-inventory-guidance*

Table 2.6: Emission Factors for Auxiliary Engines using 0.1% S, g/kWh

Engine Category	Tier	Model Year Range	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4
Medium Auxiliary	0	1999 and older	0.19	0.17	0.19	13.8	0.42	1.10	0.40	696	0.029	0.008
Medium Auxiliary	I	2000 to 2010	0.19	0.17	0.19	12.2	0.42	1.10	0.40	696	0.029	0.008
Medium Auxiliary	II	2011 to 2015	0.19	0.17	0.19	10.5	0.42	1.10	0.40	696	0.029	0.008
Medium Speed Main	III	2016 and newer	0.19	0.17	0.19	2.6	0.42	1.10	0.40	696	0.029	0.008
High Auxiliary	0	1999 and older	0.19	0.17	0.19	10.9	0.42	0.90	0.40	696	0.029	0.008
High Auxiliary	I	2000 to 2010	0.19	0.17	0.19	9.8	0.42	0.90	0.40	696	0.029	0.008
High Auxiliary	II	2011 to 2015	0.19	0.17	0.19	7.7	0.42	0.90	0.40	696	0.029	0.008
High Auxiliary	III	2016 and newer	0.19	0.17	0.19	2.0	0.42	0.90	0.40	696	0.029	0.008

Geographical Domain

The geographical domain or overwater boundary for OGVs includes the berths and waterways in the Port proper as shown in Figure 1.2 and all vessel movements within the forty nautical mile (nm) arc from Point Fermin and the SoCAB as shown in Figure 1.1. The northern boundary is the Ventura County line, and the southern boundary is the Orange County line. It should be noted that although the overwater boundary for the South Coast air quality modeling domain extends further off the coast, most of the vessel movements occur within the 40 nm arc. Vessels that pass through the domain, but do not call the Port are excluded from the inventory.

The Hawaiian, western and southern routes extend beyond the 40 nm arc into outer part of the South Coast air quality modeling domain. For the western and southern routes, this emissions inventory covers most of the emissions as most of the vessel movements occur within the 40-nm arc. For the Hawaiian route, this emissions inventory includes the other SoCAB over-water boundary emissions that extends past the 40 nm mile arc.

Data and Information Acquisition

The primary sources of data and operational information for OGVs were obtained from:

- Marine Exchange of Southern California
- Vessel Speed Reduction Program
- Jacobsen Pilot Service
- IHS Markit Maritime data
- Port Vessel Boarding Program (VBP)
- Port of Long Beach tanker loading information
- Terminal shore power activity data, including usage of CARB-approved emission control systems (CAECS) that treat at-berth emissions from auxiliary engines on ocean-going vessels
- Direct communication with vessel operators of LNG and methanol powered vessels

Emission Estimates

Summaries of the 2023 OGV emissions estimates are presented in Tables 2.7 through 2.9.

Table 2.7: 2023 Ocean-going Vessel Emissions by Vessel Type, tons and metric tons

Vessel Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Auto Carrier	2	1	1	109	3	12	6	5,829
Bulk	6	5	4	299	13	29	10	22,087
Containership	19	17	10	1,012	36	84	44	81,942
Cruise	6	5	5	367	14	32	12	20,551
General Cargo	1	1	1	54	2	5	2	3,395
RoRo	1	1	0	32	3	2	1	5,695
Tanker	40	37	16	1,248	95	129	50	168,586
Total	**74**	**68**	**38**	**3,120**	**165**	**292**	**125**	**308,086**

Table 2.8: 2023 Ocean-going Vessel Emissions by Mode, tons and metric tons

Mode	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Transit	Auxiliary Engine	6.1	5.6	6.0	372	12	37	13	21,315
Transit	Auxiliary Boiler	0.6	0.5	0.0	6	1	1	0	2,801
Transit	Main Engine	10.0	9.2	9.3	1,086	22	75	37	42,522
Total Transit		**16.7**	**15.4**	**15.4**	**1,464**	**35**	**113**	**51**	**66,638**
Maneuvering	Auxiliary Engine	1.7	1.5	1.7	102	3	10	4	5,964
Maneuvering	Auxiliary Boiler	0.2	0.2	0.0	2	1	0	0	1,065
Maneuvering	Main Engine	1.1	1.0	1.0	122	2	9	8	3,486
Total Maneuvering		**3.0**	**2.7**	**2.7**	**226**	**6**	**20**	**12**	**10,515**
Hotelling at-berth	Auxiliary Engine	13.1	12.1	13.1	717	24	81	29	46,841
Hotelling at-berth	Auxiliary Boiler	28.9	26.6	0.0	296	71	30	15	134,000
Hotelling at-berth	Main Engine	0.0	0.0	0.0	0	0	0	0	0
Total Hotelling at-berth		**42.0**	**38.7**	**13.1**	**1,014**	**95**	**112**	**44**	**180,841**
Hotelling at-anchorage	Auxiliary Engine	7.1	6.6	7.1	360	14	43	16	24,820
Hotelling at-anchorage	Auxiliary Boiler	5.5	5.1	0.0	56	15	6	3	25,271
Hotelling at-anchorage	Main Engine	0.0	0.0	0.0	0	0	0	0	0
Total Hotelling at-anchorage		**12.7**	**11.7**	**7.1**	**416**	**29**	**48**	**18**	**50,091**
Total		**74.4**	**68.4**	**38.3**	**3,120**	**165**	**292**	**125**	**308,086**

Table 2.9: 2023 Ocean-going Vessel Emissions by Emissions Source, tons and metric tons

Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Auxiliary Engine	28	26	28	1,551	54	172	61	98,940
Auxiliary Boiler	35	32	0	361	88	37	18	163,138
Main Engine	11	10	10	1,209	24	84	45	46,008
Total	**74**	**68**	**38**	**3,120**	**165**	**292**	**125**	**308,086**

Operational Profiles

Table 2.10 presents the numbers of arrivals, departures, and shifts associated with vessels at the Port in 2023. An arrival is a vessel that arrives from the sea to a berth or to anchorage prior to shifting to a berth.

Table 2.10: 2023 Total OGV Activities

Vessel Type	Arrival	Departure	Shift	Total
Auto Carrier	164	158	17	339
Bulk	185	195	203	583
Bulk - Heavy Load	15	14	3	32
Bulk - Self Discharging	33	33	5	71
Container - 1000	36	36	6	78
Container - 2000	120	120	17	257
Container - 3000	90	90	9	189
Container - 4000	83	83	23	189
Container - 5000	7	7	3	17
Container - 6000	37	37	4	78
Container - 8000	11	11	2	24
Container - 9000	14	12	3	29
Container - 10000	90	88	10	188
Container - 11000	44	44	4	92
Container - 12000	6	6	0	12
Container - 13000	122	122	10	254
Container - 14000	36	38	5	79
Container - 15000	5	5	0	10
Container - 16000	9	8	1	18
Container - 18000	1	1	0	2
Container - 19000	7	7	2	16
Cruise	194	194	2	390
General Cargo	64	67	48	179
RoRo	26	26	3	55
Tanker - Chemical	189	170	276	635
Tanker - Handysize	7	7	10	24
Tanker - Panamax	28	25	66	119
Tanker - Aframax	116	114	188	418
Tanker - Suezmax	70	69	136	275
Tanker - VLCC	69	69	290	428
Tanker - ULCC	1	1	2	4
Total	**1,879**	**1,857**	**1,348**	**5,084**

Auxiliary engines are used to provide electricity to equipment onboard the vessel. Actual VBP data, if available, is used to estimate emissions from auxiliary engines. For berth hotelling emissions, if the vessel is connected to shore power, the actual shore power records are used to estimate auxiliary engine load. If actual VBP data or shore power data is not available, call-weighted average of VBP data points are used as defaults. Table 2.11 presents the auxiliary engine load defaults by vessel type and by mode. As a routine update, in 2023, new data was collected that resulting in updated defaults for the Container-16000 containership category.

Table 2.11: 2023 Average Auxiliary Load Defaults by Mode, kW

Vessel Type	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
Auto Carrier	613	1,547	1,120	628
Bulk	288	330	501	271
Bulk - Heavy Load	462	1,223	272	253
Bulk - Self Discharging	335	779	303	319
Container - 1000	1,721	1,522	963	1,000
Container - 2000	1,634	2,036	663	1,012
Container - 3000	2,027	1,542	1,294	713
Container - 4000	1,251	2,490	814	704
Container - 5000	1,214	2,129	949	982
Container - 6000	1,943	2,583	1,007	1,274
Container - 8000	1,674	2,731	1,387	1,484
Container - 9000	1,597	2,322	1,107	1,114
Container - 10000	1,382	1,797	1,007	1,028
Container - 11000	2,092	2,647	1,152	1,526
Container - 12000	1,981	2,583	1,671	1,620
Container - 13000	1,643	2,439	1,154	1,165
Container - 14000	1,763	2,552	1,295	1,224
Container - 15000	2,075	2,427	905	1,130
Container - 16000	2,124	3,083	1,757	1,796
Container - 18000	2,233	3,200	1,850	1,950
Container - 19000	2,000	2,800	1,200	1,100
General Cargo	406	799	603	180
RoRo	132	396	229	132
Tanker - Chemical	422	559	1,395	343
Tanker - Handysize	662	682	1,050	560
Tanker - Panamax	488	550	837	402
Tanker - Aframax	505	615	986	463
Tanker - Suezmax	667	568	689	509
Tanker - VLCC	640	749	1,061	599
Tanker - ULCC	771	912	1,229	625

Table 2.12 presents the 2023 load defaults for the auxiliary boilers by vessel type and by mode, which are produced by calculating the call-weighted average of VBP data points. Similar to the auxiliary engine defaults, boiler data was collected and updated for the container-16000 containership.

Table 2.12: Auxiliary Boiler Load Defaults by Mode, kW

Vessel Type	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
Auto Carrier	85	187	323	314
Bulk	52	122	156	156
Bulk - Heavy Load	35	94	125	125
Bulk - Self Discharging	44	93	134	134
Container - 1000	148	296	760	376
Container - 2000	79	142	323	180
Container - 3000	188	180	888	361
Container - 4000	161	335	490	487
Container - 5000	223	446	484	477
Container - 6000	280	544	761	757
Container - 8000	241	442	558	554
Container - 9000	286	526	555	513
Container - 10000	278	418	598	598
Container - 11000	196	330	473	478
Container - 12000	284	507	569	569
Container - 13000	257	357	580	594
Container - 14000	379	552	696	696
Container - 15000	234	365	401	401
Container - 16000	617	779	806	806
Container - 18000	479	718	790	790
Container - 19000	38	144	848	848
General Cargo	56	127	169	168
RoRo	67	148	259	251
Tanker - Chemical	94	137	421	261
Tanker - Handysize	144	287	3,089	323
Tanker - Panamax	262	350	4,182	530
Tanker - Aframax	196	259	4,976	390
Tanker - Suezmax	144	99	8,170	516
Tanker - VLCC	240	137	8,390	490
Tanker - ULCC	235	322	10,718	366

Tankers use boilers to produce steam for equipment such as cargo pumps and steam powered inert gas fans, and also to heat fuel for pumping. Less steam is required when liquid cargo is being loaded because the steam-powered cargo pumps are not needed during loading operations. Since loading and discharging data was available for the tankers that visited the Port, a lower boiler load of 875 kW was used for tankers known to be loading cargo while at berth, while the higher boiler load listed in the table was used as a default for the tanker calls that were discharging cargo.

The default loads do not include loads from diesel electric tankers. Diesel electric crude oil tankers have significant auxiliary equipment/load differences than typical motor vessels. Specific auxiliary engine loads, collected from VBP, are used for diesel electric tankers for both the auxiliary engine and auxiliary boilers.

Table 2.13 lists the auxiliary engine defaults for all cruise ships (diesel electric and non-diesel electric) engaged in passenger service at the Port in 2023. These auxiliary engine defaults values are produced by calculating the average of VBP data by mode of operation for each cruise vessel size group up to 4,500 passengers. For vessels larger than 4,500 passengers, the defaults were scaled up to reflect the operations of larger size vessels. Normal cruise ship operations were underway from the beginning to the end of 2023 calendar year. The "na" in the table implies not available.

Table 2.13: Cruise Ship Average Auxiliary Engine Load Defaults, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<200	332	585	293	351
200 < 1,500	2,768	3,833	2,965	3,038
1,500 < 2,000	6,883	8,100	5,624	na
2,000 < 2,500	8,033	9,000	7,680	na
2,500 < 3,000	8,052	8,577	6,410	7,820
3,000 < 3,500	7,867	9,511	7,069	8,036
3,500 < 4,000	8,615	9,230	7,201	8,736
4,000 < 4,500	8,552	9,086	7,851	8,100
4,500 < 5,000	8,980	9,359	8,479	8,181

Table 2.14 presents the load defaults for the auxiliary boilers for diesel electric cruise ships. In 2023, all of the cruise vessels that visited the Port were diesel electric.

Table 2.14: Cruise Ship Auxiliary Boiler Load Defaults by Mode for, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<200				
200 < 1,500	692	766	850	594
1,500 < 2,000	1,070	1,145	1,951	976
2,000 < 2,500	1,382	1,773	3,005	1,506
2,500 < 3,000	671	736	1,363	616
3,000 < 3,500	568	748	1,276	992
3,500 < 4,000	555	506	859	735
4,000 < 4,500	335	29	551	671
4,500 < 5,000	281	21	468	698

Vessel hotelling times at-berth for the entire duration the vessel was at berth, regardless of shore power usage, are shown in Table 2.15. The RoRo vessels (ready reserve vessels that stay at berth all year) and Bulk-Heavy Load vessel (support space technology tenant) with high hotelling hours use shore power while at berth.

Table 2.15: 2023 At-Berth Hotelling Times, hours and days

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days
Auto Carrier	5	49	13	0.6
Bulk - General	0	412	99	4.1
Bulk - Heavy Load	8	5,600	517	21.6
Bulk - Self Discharging	7	61	32	1.3
Container - 1000	6	38	24	1.0
Container - 2000	10	102	42	1.7
Container - 3000	6	88	40	1.7
Container - 4000	9	143	43	1.8
Container - 5000	39	133	72	3.0
Container - 6000	2	165	69	2.9
Container - 8000	12	142	73	3.0
Container - 9000	7	120	91	3.8
Container - 10000	23	198	101	4.2
Container - 11000	15	158	104	4.4
Container - 12000	106	233	150	6.3
Container - 13000	3	223	124	5.2
Container - 14000	6	205	128	5.3
Container - 15000	117	191	153	6.4
Container - 16000	5	243	171	7.1
Container - 18000	204	204	204	8.5
Container - 19000	8	231	160	6.7
Cruise	4	22	10	0.4
General Cargo	4	331	45	1.9
RoRo	21	8,760	641	26.7
Tanker - Chemical	8	231	49	2.1
Tanker - Handysize	11	57	35	1.5
Tanker - Panamax	4	124	45	1.9
Tanker - Aframax	2	232	50	2.1
Tanker - Suezmax	6	48	23	1.0
Tanker - VLCC	4	112	29	1.2
Tanker - ULCC	26	28	27	1.1

The time spent at anchorage are listed in Table 2.16.

Table 2.16: 2023 At-Anchorage Hotelling Times, hours

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days	Anchorage Activity Count
Auto Carrier	5	48	24	1.0	12
Bulk - General	3	432	85	3.5	166
Bulk - Heavy Load	22	22	22	0.9	1
Bulk - Self Discharging	8	78	28	1.2	5
Container - 1000	6	17	10	0.4	6
Container - 2000	3	570	131	5.5	10
Container - 3000	1	73	26	1.1	4
Container - 4000	6	117	34	1.4	20
Container - 5000	13	125	52	2.2	3
Container - 6000	57	57	57	2.4	1
Container - 8000	2	2	2	0.1	1
Container - 9000	8	144	76	3.2	2
Container - 10000	11	38	21	0.9	3
Container - 11000	1	12	7	0.3	3
Container - 12000	0	0	0	0.0	0
Container - 13000	14	25	20	0.8	4
Container - 14000	20	26	23	1.0	2
Container - 15000	0	0	0	0.0	0
Container - 16000	0	0	0	0.0	0
Container - 18000	0	0	0	0.0	0
Container - 19000	0	0	0	0.0	0
Cruise	7	9	8	0.3	2
General Cargo	2	307	42	1.7	42
RoRo	31	31	31	1.3	1
Tanker - Chemical	1	428	47	1.9	204
Tanker - Handysize	12	81	37	1.5	8
Tanker - Panamax	2	561	63	2.6	55
Tanker - Aframax	1	401	62	2.6	170
Tanker - Suezmax	4	406	61	2.6	103
Tanker - VLCC	1	477	107	4.5	201
Tanker - ULCC	80	80	80	3.4	1
Total					**1,030**

For this EI, a frequent caller is a vessel that made six or more calls in one calendar year. Table 2.17 shows that 9% of vessels that called the Port in 2023 are frequent callers (i.e., six or more calls/year).

Table 2.17: 2023 Percentage of Frequent Callers

Vessel Type	Frequent Vessels	Total Vessels	Percent Frequent Vessels
Auto Carrier	1	112	1%
Bulk - General	1	167	1%
Bulk - Heavy Load	1	6	17%
Bulk - Self Discharging	2	5	40%
Container - 1000	2	4	50%
Container - 2000	7	13	54%
Container - 3000	5	14	36%
Container - 4000	4	29	14%
Container - 5000	0	6	0%
Container - 6000	2	11	18%
Container - 8000	0	8	0%
Container - 9000	0	6	0%
Container - 10000	9	18	50%
Container - 11000	1	17	6%
Container - 12000	0	4	0%
Container - 13000	11	36	31%
Container - 14000	1	20	5%
Container - 15000	0	5	0%
Container - 16000	0	4	0%
Container - 18000	0	1	0%
Container - 19000	0	5	0%
Cruise	3	3	100%
General Cargo	0	43	0%
RoRo	1	2	50%
Tanker - Chemical	8	104	8%
Tanker - Handysize	0	5	0%
Tanker - Panamax	0	21	0%
Tanker - Aframax	5	37	14%
Tanker - Suezmax	5	20	25%
Tanker - VLCC	0	41	0%
Tanker - ULCC	0	1	0%
Total	**69**	**768**	
Average			**9%**

Table 2.18 presents the percent of engine tier by vessel type for arrivals/shift at the Port in 2023. In 2023, 11% of the calls were from vessels with certified Tier III main engines. NO_x emissions for Tier III vessels are 75% cleaner than Tier II vessels when operating at or above 25% main engine load. The no tier column includes steamships or vessels with gas turbines.

Table 2.18: 2023 Percent of OGV Activity by Main Engine Tier and Vessel Type

Vessel Type	IMO Tier 0	IMO Tier I	IMO Tier II	IMO Tier III	No Tier	Calls Count
Auto Carrier	9%	68%	12%	10%	0%	164
Bulk - General	0%	34%	58%	8%	0%	188
Bulk - Heavy Load	13%	67%	7%	13%	0%	15
Bulk - Self Discharging	24%	33%	42%	0%	0%	33
Container - 1000	47%	25%	28%	0%	0%	36
Container - 2000	1%	29%	3%	32%	36%	120
Container - 3000	28%	1%	19%	52%	0%	90
Container - 4000	1%	83%	16%	0%	0%	83
Container - 5000	0%	100%	0%	0%	0%	7
Container - 6000	0%	100%	0%	0%	0%	37
Container - 8000	0%	67%	33%	0%	0%	12
Container - 9000	0%	64%	36%	0%	0%	14
Container - 10000	0%	39%	61%	0%	0%	90
Container - 11000	0%	46%	55%	0%	0%	44
Container - 12000	0%	17%	83%	0%	0%	6
Container - 13000	0%	15%	72%	13%	0%	123
Container - 14000	0%	25%	75%	0%	0%	36
Container - 15000	0%	0%	0%	100%	0%	5
Container - 16000	0%	0%	100%	0%	0%	9
Container - 18000	0%	0%	100%	0%	0%	1
Container - 19000	0%	0%	100%	0%	0%	7
Cruise	54%	22%	24%	0%	0%	194
General Cargo	3%	62%	35%	0%	0%	66
RoRo	0%	0%	96%	0%	4%	26
Tanker - Chemical	5%	28%	56%	11%	0%	194
Tanker - Handysize	75%	25%	0%	0%	0%	8
Tanker - Panamax	0%	86%	14%	0%	0%	28
Tanker - Aframax	0%	44%	38%	18%	0%	116
Tanker - Suezmax	16%	71%	10%	3%	0%	70
Tanker - VLCC	0%	17%	62%	20%	0%	69
Tanker - ULCC	0%	0%	100%	0%	0%	1
Total	**11%**	**39%**	**38%**	**11%**	**2%**	

SECTION 3 HARBOR CRAFT

Source Description

Harbor craft are commercial vessels that spend the majority of their time within or near the port and harbor, except for articulated tug barges (ATBs) which transit from port to port and may not be home berthed at the Port. In addition to ATBs being included in the harbor craft inventory, various types of barges have been incorporated into the 2023 EI to be consistent with the CARB Commercial Harbor Craft (CHC) regulation[4] (CARB 2022 CHC regulation amendment). Emissions from the following types of diesel-fueled harbor craft were quantified:

- Assist tugboats
- Articulated tug barge (ATB)
- Barges (Other and tank barge)
- Crew and supply boats
- Excursion vessels
- Ferry vessels
- Government vessels
- Harbor tugboats
- Ocean tugboats
- Work boats

Emissions Estimation Methodology

The methodology to estimate 2023 emissions from harbor craft is described in Section 3 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. The Port's harbor craft emission calculation methodology is consistent with CARB methodology[5].

Renewable diesel was used by all the harbor craft engines in California for the first time in 2023 to comply with CARB 2022 CHC regulation amendment. For pre-Tier 4 engines, use of renewable fuel reduces[6] tailpipe PM emission by 30%, NO_x and CO emissions by 10%, and hydrocarbon emissions by 5%. Tailpipe CO_2 emissions are reduced by 4.5 % for all tiers. Table 3.1 summarizes the control factors used by engine Tier and whether the engine has a DPF retrofit or not to reflect the emission reduction from use of renewable fuel.

Table 3.1: Control Factors for Renewable Diesel, unitless

Control Measure	Engine Tier	Retrofit	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Renewable Diesel (RD99)	Tier 0-3	None	0.7	0.7	0.7	0.9	1.0	0.9	0.95	0.955	0.9	0.95
Renewable Diesel (RD99)	Tier 4	None	1.0	1.0	1.0	1.0	1.0	1.0	1.00	0.955	1.0	1.00

[4] *www.arb.ca.gov/rulemaking/2021/chc2021*

[5] Appendix H - 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, *www.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf*

[6] CARB, *https://ww2.arb.ca.gov/sites/default/files/2021-11/Low_Emission_Diesel_Study_Final_Report.pdf* ; *https://ww2.arb.ca.gov/sites/default/files/2023-04/2022InUseDieselInventory.pdf*

Geographical Domain

Emissions are estimated for harbor craft operating within 40 nm of the South Coast Air Basin over-water boundary. Figure 1.1 in Section 1 of this report illustrates the geographical domain.

Data and Information Acquisition

Harbor craft owners and operators were contacted to obtain key physical and operational parameters, including:

- Type of harbor craft
- Engine count
- Engine horsepower (or kilowatts) for main and auxiliary engines
- Engine model year
- Operating hours in calendar year 2023
- Fuel type

Emission Estimates

Table 3.2 summarizes the estimated harbor craft vessel emissions by vessel type and engine type. In 2023, there are more types of barges included than in past inventories and the use of renewable diesel was included for the first time.

Table 3.2: 2023 Harbor Craft Emissions by Vessel and Engine Type, tons and metric tons

Harbor Craft	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Assist tugboat	Auxiliary	0.2	0.2	0.2	10.2	0.0	2.8	0.4	1,600
	Propulsion	0.9	0.9	0.9	56.9	0.1	11.3	2.4	6,868
Assist tugboat Total		**1.2**	**1.1**	**1.2**	**67.1**	**0.1**	**14.1**	**2.8**	**8,468**
ATB	Auxiliary	0.0	0.0	0.0	1.4	0.0	0.3	0.1	178
	Propulsion	0.1	0.1	0.1	4.6	0.0	0.8	0.4	458
ATB Total		**0.2**	**0.2**	**0.2**	**5.9**	**0.0**	**1.1**	**0.4**	**637**
Barges	Auxiliary	0.5	0.4	0.5	14.2	0.0	4.5	0.7	2,169
	Propulsion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Barge Total		**0.5**	**0.4**	**0.5**	**14.2**	**0.0**	**4.5**	**0.7**	**2,169**
Crew Boat	Auxiliary	0.1	0.0	0.1	2.0	0.0	0.5	0.1	296
	Propulsion	0.5	0.4	0.5	30.3	0.0	4.9	1.2	3,306
Crew boat Total		**0.5**	**0.5**	**0.5**	**32.3**	**0.0**	**5.5**	**1.3**	**3,602**
Excursion	Auxiliary	0.1	0.1	0.1	1.3	0.0	0.4	0.1	139
	Propulsion	0.1	0.1	0.1	6.5	0.0	1.3	0.3	696
Excursion Total		**0.2**	**0.2**	**0.2**	**7.9**	**0.0**	**1.7**	**0.4**	**836**
Ferry	Auxiliary	0.0	0.0	0.0	1.6	0.0	0.5	0.1	241
	Propulsion	1.1	1.1	1.1	64.7	0.1	14.1	2.9	9,025
Ferry Total		**1.2**	**1.1**	**1.2**	**66.3**	**0.1**	**14.6**	**2.9**	**9,266**
Government	Auxiliary	0.0	0.0	0.0	0.6	0.0	0.1	0.0	81
	Propulsion	0.1	0.1	0.1	10.6	0.0	2.3	0.5	1,392
Government Total		**0.1**	**0.1**	**0.1**	**11.2**	**0.0**	**2.4**	**0.6**	**1,473**
Ocean tugboat	Auxiliary	0.0	0.0	0.0	1.9	0.0	0.4	0.1	252
	Propulsion	0.7	0.6	0.7	42.7	0.0	6.2	1.4	3,405
Ocean tugboat Total		**0.7**	**0.7**	**0.7**	**44.6**	**0.0**	**6.6**	**1.5**	**3,657**
Harbor tugboat	Auxiliary	0.2	0.2	0.2	7.0	0.0	2.0	0.3	1,100
	Propulsion	0.6	0.6	0.6	36.7	0.0	6.8	1.6	4,142
Harbor tugboat Total		**0.8**	**0.8**	**0.8**	**43.7**	**0.1**	**8.9**	**1.9**	**5,242**
Work boat	Auxiliary	0.0	0.0	0.0	0.2	0.0	0.0	0.0	23
	Propulsion	0.0	0.0	0.0	2.5	0.0	0.4	0.1	368
Work boat Total		**0.0**	**0.0**	**0.0**	**2.7**	**0.0**	**0.5**	**0.1**	**391**
Harbor Craft Total		**5.43**	**5.14**	**5.4**	**295.9**	**0.4**	**59.8**	**12.7**	**35,740**

Operational Profiles

Table 3.3 lists the harbor craft engine count by USEPA marine engine emissions standards tier level and engine type in 2023. The unknown auxiliary engine count is high due to the numerous barges included in the inventory with unknown engine year.

Table 3.3: 2023 Harbor Craft Engine Tier Count

Engine Tier	Auxiliary Engine Count	Propulsion Engine Count	Total Engine Count
Unknown	110	8	118
Tier 0	12	9	21
Tier 1	5	11	16
Tier 2	46	93	139
Tier 3	125	68	193
Tier 4	0	30	30
Total	**298**	**219**	**517**

Table 3.4 summarizes the energy consumption (kWh) per engine tier for 2023 harbor craft that operated at the Port. The kWh for engines with unknown Tiers were based on default engine kW and/or engine model year. Tier 2 to Tier 4 engines contributed 92% of the total harbor craft related energy for 2023.

Table 3.4: Harbor Craft Energy Consumption by Engine Tier, kWh and %

Engine Tier	2023 kWh	2023 % of Total
Tier 0	421,791	0.8%
Tier 1	4,007,991	7.6%
Tier 2	21,242,358	40.1%
Tier 3	16,618,665	31.3%
Tier 4	10,736,647	20.2%
Total	**53,027,453**	**100%**

Tables 3.5 and 3.6 summarize the characteristics of propulsion and auxiliary engines, respectively, by vessel type operating at the Port in 2023. Averages of the model year, horsepower, or operating hours are used as default values when specific data is not available. Defaults were used for many of the barges that called the Port and were added for the first time in this 2023 inventory. Several companies operate harbor craft in the harbors of both the Ports of Long Beach and Los Angeles. For harbor vessels that share the work at both Ports in San Pedro Bay, the total hours are divided equally between the two ports.

Table 3.5: 2023 Propulsion Engine Characteristics by Harbor Craft Type

Propulsion Engines											
Harbor	Vessel	Engine		Model year			Horsepower			Annual Operating Hours	
Craft Type	Count	Count	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Assist tugboat	11	22	2008	2021	2013	2,000	3,386	2,744	948	1,919	1,387
ATB	10	20	2000	2018	2010	2,035	6,035	3,904	2	107	29
Barge	53	0	na	na	na	na	na	na	na	na	na
Crew boat	21	53	2003	2023	2014	201	1,450	602	25	1,820	700
Excursion	10	18	1980	2023	2008	150	500	354	30	2,881	724
Ferry	12	26	2008	2022	2014	180	2,680	1,793	54	2,943	1,053
Government	4	8	2013	2016	2014	803	2,012	1,408	98	2,076	1,148
Ocean tugboat	6	12	2004	2019	2013	1,875	2,000	1,906	10	1,500	587
Harbor tugboat	22	44	2004	2020	2012	300	3,386	1,061	72	3,948	959
Work boat	9	16	1999	2022	2012	210	800	510	2	842	232
Total	**158**	**219**									

Table 3.6: 2023 Auxiliary Engine Characteristics by Harbor Craft Type

Auxiliary Engines											
Harbor	Vessel	Engine		Model year			Horsepower			Annual Operating Hours	
Craft Type	Count	Count	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Assist tugboat	11	23	2007	2021	2015	54	397	232	329	2,354	1,727
ATB	10	24	2000	2018	2011	77	800	299	13	562	138
Barge	53	120	2000	2014	2006	32	1900	684	6	9,483	1,988
Crew boat	21	26	2008	2022	2014	13	125	69	34	2,182	788
Excursion	10	11	1980	2021	2008	12	90	54	30	2,374	980
Ferry	12	18	2008	2017	2011	18	120	67	380	1,685	835
Government	4	12	2013	2019	2013	16	2012	865	6	3,435	632
Ocean tugboat	6	12	2004	2019	2013	90	150	127	33	1,500	621
Harbor tugboat	22	40	2004	2021	2012	15	429	142	75	3,013	851
Work boat	9	12	1979	2020	2008	40	305	90	9	366	199
Total	**158**	**298**									

SECTION 4 CARGO HANDLING EQUIPMENT

Source Description

Cargo handling equipment (CHE) typically operates at Port terminals or railyards to move cargo such as containers, general cargo, and bulk cargo to and from marine vessels, railcars, and on-road trucks. The majority of CHE are composed of off-road equipment not designed to operate on public roadways. This inventory includes CHE powered by engines fueled by diesel, gasoline, propane or electricity.

Emissions Estimation Methodology

The emissions calculation methodology used to estimate CHE emissions is consistent with CARB's latest methodology for estimating emissions from CHE.[7] Details of the methodology to estimate emissions from CHE is described in Section 4 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5[8].

Table 4.1 summarizes the control factors for renewable diesel used by CHE at some of the container terminals.

Table 4.1: Control Factors for Renewable Diesel, unitless

Control Measure	Engine Tier	Retrofit	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Renewable Diesel (RD99)	Tier 0-3	None	0.700	0.700	0.700	0.9	1.0	0.9	0.95	0.955	0.9	0.95
Renewable Diesel (RD99)	Tier 4	None	1.000	1.000	1.000	1.0	1.0	1.0	1.00	0.955	1.0	1.00
Renewable Diesel (RD99)	Tier 0-3	DPF	0.105	0.105	0.105	0.9	1.0	0.9	0.95	0.955	0.9	0.95

Geographical Domain

Emissions are estimated for CHE operating within Port terminals and facilities.

Data and Information Acquisition

The maintenance and/or CHE operating staff of each terminal were contacted to obtain equipment count and activity information on the CHE specific to their terminal or facility operations for the 2023 calendar year.

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[7]CARB, 2017 Off-road Diesel Emission Factors and 2017 Off-road Diesel Emission Factors Documentation. *ww2.arb.ca.gov/our-work/programs/msei/road-categories/road-diesel-models-and-documentation*

Emission Estimates

A summary of CHE emissions by terminal type shows that approximately 94% of the CHE emissions occur at the container terminals. The "other" category included in Table 4.2 is for chassis yards within the Port that operates cargo handling equipment.

Table 4.2: 2023 CHE Emissions by Terminal Type, tons and metric tons

Terminal Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Auto	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Break-Bulk	0.2	0.2	0.2	6.8	0.0	15.9	1.1	3,079
Container	6.4	5.8	5.3	149.1	1.1	734.0	25.8	93,534
Cruise	0.0	0.0	0.0	0.8	0.0	14.1	0.2	438
Dry Bulk	0.0	0.0	0.0	0.2	0.0	1.2	0.1	201
Liquid	0.0	0.0	0.0	0.5	0.0	1.2	0.1	42
Other	0.1	0.1	0.1	1.8	0.0	5.9	0.3	1,357
Total	**6.8**	**6.2**	**5.6**	**159.3**	**1.2**	**772.3**	**27.7**	**98,651**

Table 4.3 presents the CHE emissions by equipment and engine type. Emissions from one 13 hp piece of equipment is included under the miscellaneous diesel category.

Table 4.3: 2023 CHE Emissions by Equipment Type, tons and metric tons

Port Equipment	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Cone vehicle	Diesel	0.0	0.0	0.0	0.3	0.0	0.5	0.0	45
Crane	Diesel	0.0	0.0	0.0	0.0	0.0	0.1	0.0	11
Excavator	Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
Forklift	Diesel	0.2	0.2	0.2	8.4	0.0	13.2	1.1	2,308
Forklift	Gasoline	0.0	0.0	0.0	0.1	0.0	4.0	0.0	178
Forklift	Propane	0.1	0.1	0.0	1.4	0.0	19.7	0.3	517
Loader	Diesel	0.1	0.1	0.1	2.6	0.0	4.7	0.6	2,195
Man lift	Diesel	0.0	0.0	0.0	0.3	0.0	0.4	0.0	62
Man lift	Gasoline	0.0	0.0	0.0	0.0	0.0	0.1	0.0	4
Miscellaneous	Diesel	0.0	0.0	0.0	0.0	0.0	0.1	0.0	6
Rail pusher	Diesel	0.0	0.0	0.0	0.6	0.0	0.8	0.1	211
RTG crane	Diesel	0.4	0.4	0.4	20.6	0.1	10.7	2.2	4,584
Side handler	Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Skid steer loader	Diesel	0.0	0.0	0.0	0.1	0.0	0.1	0.0	24
Sweeper	Diesel	0.0	0.0	0.0	0.7	0.0	0.6	0.1	240
Sweeper	Propane	0.0	0.0	0.0	0.0	0.0	0.2	0.0	16
Top handler	Diesel	2.6	2.4	2.6	60.2	0.4	79.7	13.7	36,563
Tractor	Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Tractor	Propane	0.0	0.0	0.0	0.3	0.0	7.1	0.1	120
Truck	Diesel	0.2	0.2	0.2	4.3	0.0	2.7	0.5	1,176
Yard tractor	Diesel	2.0	1.8	2.0	53.0	0.5	109.8	8.3	38,105
Yard tractor	Gasoline	1.1	1.0	0.0	6.3	0.1	518.1	0.5	12,280
Total		**6.8**	**6.2**	**5.6**	**159.3**	**1.2**	**772.3**	**27.7**	**98,651**

Operational Profiles

Table 4.4 is a summary of all the CHE engines by fuel type, including electric equipment. In 2023, the electric equipment counts continued to increase (16 new ZE CHE were added) and are 19% of the total CHE that move cargo at the Port. Table 4.5 shows a more detailed count and description of the electric CHE.

Table 4.4: 2023 CHE Engines by Fuel Type

Equipment	Electric	Propane	Gasoline	Diesel	Total
Forklift	17	84	27	112	240
RTG crane	9	0	0	59	68
Side handler	0	0	0	2	2
Top handler	0	0	0	200	200
Yard tractor	1	0	134	543	678
Sweeper	2	7	0	13	22
Other	272	9	2	58	341
Total	**301**	**100**	**163**	**987**	**1,551**
Percent of Total	**19%**	**6%**	**11%**	**64%**	

Table 4.5: 2023 Electric Equipment Count

Equipment	2023 Electric Count
Automated guided vehicle	100
Automatic stacking crane	69
Cone vehicle	8
Crane	7
Forklift	17
Man Lift	1
RTG crane	9
Ship to shore crane	82
Sweeper	2
Top handler	0
Truck	5
Yard tractor	1
Total	**301**

Table 4.6 summarizes the characteristics of fossil fueled (i.e. diesel, gasoline, and propane) CHE data collected for the 2023 calendar year. The average values shown in the following tables are population-weighted and are used as default. For equipment without specific operational information available, default values associated with the specific equipment and engine type are used. For fossil fueled CHE, defaults were used for less than 1% model year values, 6% of horsepower values, and less than 1% of operating hour values. Some of the equipment with zero operating hours are included in the table because the equipment is part of the fleet and for various reasons, may not have been used in 2023.

Table 4.6: 2023 Engine Characteristics for Fossil Fueled CHE Operating at the Port

Equipment	Engine Type	Count	Power (hp)			Model Year			Annual Operating Hours		
			Min	Max	Average	Min	Max	Average	Min	Max	Average
Cone vehicle	Diesel	5	35	35	35	2016	2016	2016	199	1,410	914
Crane	Diesel	2	173	450	312	2016	2020	2018	5	241	123
Excavator	Diesel	1	na	na	na	2016	2016	2016	0	0	0
Forklift	Diesel	112	43	382	167	1995	2022	2014	10	4,322	808
Hybrid RTG crane	Diesel	30	133	250	202	2016	2023	2018	36	1,626	927
Loader	Diesel	15	96	560	385	1985	2022	2015	50	3,000	1,097
Man Lift	Diesel	14	48	100	75	2000	2021	2014	37	771	216
Miscellaneous	Diesel	1	13	13	13	2010	2010	2010	1,678	1,678	1,678
Rail pusher	Diesel	4	150	260	200	2013	2019	2014	508	1,562	993
RTG crane	Diesel	29	503	615	529	1998	2021	2012	332	3,951	2,310
Side handler	Diesel	2	205	205	205	2002	2015	2009	0	210	53
Skid steer loader	Diesel	3	67	73	70	2015	2022	2019	268	500	356
Sweeper	Diesel	13	34	300	187	2005	2020	2015	61	974	297
Top handler	Diesel	200	250	388	352	2000	2022	2014	11	4,734	1,648
Tractor	Diesel	1	59	59	59	2009	2009	2009	80	80	80
Truck	Diesel	12	177	545	408	2006	2019	2011	305	2,220	1,397
Yard tractor	Diesel	543	173	250	231	2007	2014	2010	6	5,955	1,742
Forklift	Gasoline	27	59	84	67	2011	2023	2014	49	849	430
Man Lift	Gasoline	2	82	82	82	2000	2004	2002	112	112	112
Yard tractor	Gasoline	134	335	335	335	2011	2022	2014	2	1,971	963
Forklift	Propane	84	42	141	77	1987	2022	2007	3	1,375	385
Sweeper	Propane	7	47	114	65	2004	2016	2012	22	140	69
Tractor	Propane	9	57	101	96	1996	1997	1996	155	453	409
Total		**1,250**									

Table 4.7 is a summary of the emission reduction technologies[9] utilized in cargo handling equipment as retrofits to existing equipment, including diesel particulate filters (DPF) and BlueCAT retrofit for large-spark ignition (LSI) engines. Hybrid equipment, on-road engine, and renewable diesel counts have also been included in the table. In 2023, five container terminals continued to voluntarily use renewable diesel.

Table 4.7: 2023 CHE Emission Reduction Technologies by Equipment Type

Equipment	Hybrid Equipment	On-Road Engines	ULSD Fuel	Renewable Diesel	DPF Retrofit	BlueCAT Retrofit
Forklift	0	0	78	34	18	18
RTG crane	30	0	28	31	5	0
Side handler	0	0	2	0	0	0
Top handler	0	0	79	121	23	0
Yard tractor	0	241	246	297	0	0
Sweeper	0	0	9	4	0	0
Other	0	3	38	20	2	9
Total	**30**	**244**	**480**	**507**	**48**	**27**

Table 4.8 summarizes the distribution of diesel-powered CHE equipped with off-road diesel engines by USEPA non-road engine emission standards tier level. The table also includes on-road diesel engines. On-road engines are generally lower in emissions than the off-road engines of the same model year.

Table 4.8: 2023 Count of Diesel-Powered CHE by Type and Engine Emission Standard

Equipment Type	Unknown Tier	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4i	Tier 4f	On-road	Total Diesel
Yard tractor	4	0	0	0	0	1	297	241	543
Forklift	14	3	3	10	4	13	65	0	112
Top handler	37	0	1	13	6	58	85	0	200
Other	19	1	0	0	1	7	27	1	56
RTG crane	2	0	5	2	0	13	37	0	59
Side handler	2	0	0	0	0	0	0	0	2
Sweeper	4	0	0	1	1	0	7	0	13
Total	**82**	**4**	**9**	**26**	**12**	**92**	**518**	**242**	**985**
Percent of Total	**8%**	**0%**	**1%**	**3%**	**1%**	**9%**	**53%**	**25%**	

[9] *www.arb.ca.gov/diesel/verdev/vt/cvt.htm*

Table 4.9 summarizes the energy consumption (kWh) for all of the fossil fueled equipment by engine tier. For diesel equipment, the equipment with higher tier levels (newer equipment) and those with on-road engines are generally used more than older equipment, which contributes to reduced emissions due to cleaner engine standards in newer equipment. In 2023, 85% of the energy consumed was by equipment with Tier 4i, Tier 4f, and on-road engines.

Table 4.9: Equipment Energy Consumption by Engine Type and Diesel Engine Standard, kWh and %

Engine Type	Engine Tier	kWh	% of Total
Diesel	Tier 0	31,624	0.02%
Diesel	Tier 1	915,426	1%
Diesel	Tier 2	2,383,987	2%
Diesel	Tier 3	1,763,425	1%
Diesel	Tier 4i	19,345,395	15%
Diesel	Tier 4f	60,821,162	48%
Diesel	Onroad	28,185,139	22%
Gasoline		12,560,162	10%
Propane		721,798	0.57%
Total		**126,728,116**	**100%**

SECTION 5 RAILROAD LOCOMOTIVES

Source Description

Railroad locomotives are used to move trains transporting intermodal (containerized) freight and lesser amounts of dry bulk, liquid bulk, and carload (boxcar) freight to, from, and within the Port. Railroad locomotive activities at the Port consist of two different types of operations: the initiation or termination of long-distance cargo movements, known as line haul, and the short-distance movement of rail cars, such as the assembling and disassembling of trains in and around the Port, known as switching.

Rail operators Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) provide line haul service to and from the Port and operate switching services at their off-port locations. Pacific Harbor Line (PHL) performs most of the switching operations within the Port.

Emissions Estimation Methodology

The methodology used to estimate 2023 emissions from rail locomotives follows the methodology as described in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Geographical Domain

Emissions from railroad locomotives are estimated for movements of cargo by rail locomotives within Port boundaries, directly to or from port-owned properties such as terminals and on-port rail yards, or to and from the SoCAB boundary. The inventory does not include rail movements of cargo that occur solely outside the Port, such as off-port rail yard switching, and movements that neither begin nor end at a Port property, such as east-bound line hauls that initiate in central Los Angeles intermodal yards. Figure 1.1 in Section 1 of this report illustrates the geographical domain.

Data and Information Acquisition

Information from the following general sources was used to estimate emissions associated with Port-related activities of locomotives:

- Previous emissions studies
- Port cargo statistics
- Input from railroad operators
- Information published by EPA, the Surface Transportation Board, and other sources as cited in this report
- California Air Resources Board Memorandum of Understanding (CARB MOU)[10] line-haul fleet compliance data

In 2023, PHL switching locomotives used renewable diesel for the first time. Similar to harbor craft, it was assumed that use of renewable fuel in switching locomotives, for pre-Tier 4 engines, reduces[11] tailpipe PM emission by 30%, NO_x and CO emissions by 10%, and hydrocarbon emissions by 5%. Tailpipe CO2 emissions are reduced by 4.5 % for all tiers.

The Port continues to use the most recent, locally specific data available, including MOU compliance data reflective of actual recent line haul fleet mix characteristics in the SoCAB. In addition, PHL has provided fuel consumption information for each locomotive in service in each calendar year, along with the engine tier levels of the locomotives. Table 5.1 lists the number of locomotives of each tier level that were operated in 2023, and the percentage of fuel used by locomotives in each tier. Discussion of the tiers and a list of tier-specific emission factors are included in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Table 5.1: PHL Switching Fleet Mix

Locomotive Tier Level /Power Type	Count	% of Fuel Consumed
Genset	6	2%
Tier 3	0	0%
Tier 3+	17	96%
Tier 4	1	2%
Totals	**24**	**100%**

[10] *www.arb.ca.gov/resources/documents/rail-emission-reduction-agreements*
The 1998 Locomotive NO_x Fleet Average Emissions Agreement in the South Coast Air Basin, signed by CARB, Union Pacific Railroad (UP) and BNSF Railway (BNSF), accelerated the introduction of cleaner locomotives into the South Coast Air Basin. Under the Agreement, UP and BNSF agreed to operate locomotive fleets that "on average" meet a Tier 2 NO_x emission standard, or 5.5 g/bhp-hr by 2010 (and through 2030). The railroads submit detailed information on the locomotives operated in the SoCAB to demonstrate compliance with the agreement.
[11] *https://ww2.arb.ca.gov/sites/default/files/2021-11/Low_Emission_Diesel_Study_Final_Report.pdf ; https://ww2.arb.ca.gov/sites/default/files/2023-04/2022InUseDieselInventory.pdf*

Emission Estimates

A summary of estimated emissions from locomotive operations related to the Port is presented in Table 5.2.

Table 5.2: 2023 Locomotive Emissions, tons and metric tons

Activity Component	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
On-Port Emissions								
Switching	0.2	0.2	0.2	18.9	0.0	7.8	1.1	2,615
Line Haul	5.1	4.7	5.1	133.0	0.1	30.7	7.7	10,760
On-Port Subtotal	5.4	4.9	5.4	151.9	0.1	38.5	8.8	13,375
Off-Port (Regional) Emissions								
Switching	0.1	0.1	0.1	3.9	0.0	0.7	0.2	231
Line Haul	13.4	12.3	13.4	347.1	0.3	80.2	20.0	28,071
Off-Port Subtotal	13.5	12.4	13.5	351.0	0.3	80.9	20.3	28,302
Total	**18.8**	**17.3**	**18.8**	**503.0**	**0.5**	**119.4**	**29.1**	**41,677**

Operational Profiles

The goods movement rail system in terms of the activities that are carried out by locomotive operators is the same as described in detail in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5.

Table 5.3 presents the CARB MOU compliance information submitted annually by BNSF and UP on pre-Tier 0 through Tier 4 locomotive fleet composition, showing a weighted average NO_x emission factor of 5.54 g/bhp-hr.[12] The 2022 reports were used instead of 2023 because of the timing of the inventory data collection phase and of the posting of the compliance reports by CARB. The ultra-low emission locomotives (ULEL) are also included in the table but are not used in developing the line haul emission factors because the ULELs are believed to all be in switching service.

[12]Notes from railroads' MOU compliance submissions:
1. For more information on the U.S. EPA locomotive emission standards, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-locomotives*
2. Number of locomotives is the sum of all individual locomotives that visited or operated within the SCAB at any time during 2022.

Table 5.3: CARB MOU Compliance Data, Megawatt-hours (MWh) and g NO_x/bhp-hr

Engine Tier	Number of Locomotives	Megawatt-hours (MWh)	% MWh by Tier Level	Wt'd Avg NO_x (g/bhp-hr)	Tier Contribution to Fleet Average (g/bhp-hr)
BNSF					
Pre-Tier 0	812	1,335	0.6%	13.0	0.08
Tier 0	73	3,792	1.8%	10.9	0.20
Tier 1	1,382	81,853	40%	6.5	2.58
Tier 2	1,588	63,154	31%	4.9	1.50
Tier 3	1,220	45,449	22%	3.9	0.86
Tier 4	269	10,968	5.3%	1.2	0.06
ULEL	0	0	0%	-	-
Total BNSF	**5,344**	**206,551**	**100%**		**5.28**
UP					
Pre-Tier 0	31	294	0.2%	5.6	0.01
Tier 0	181	6,120	3%	8.5	0.28
Tier 1	1,764	88,592	47%	7	3.29
Tier 2	1,372	51,228	27%	5.1	1.38
Tier 3	958	30,080	16%	4.9	0.78
Tier 4	248	12,368	6.6%	1.1	0.07
ULEL	0	0	0%		0.00
Total UP	**4,554**	**188,682**	**100%**		**5.81**
		ULEL Credit Used			0.30
		UP Fleet Average			**5.11**
Both RRs, excluding ULELs and ULEL credits					
Pre-Tier 0	843	1,629	0%	11.7	0.05
Tier 0	254	9,912	3%	9.4	0.24
Tier 1	3,146	170,445	43%	6.8	2.92
Tier 2	2,960	114,382	29%	5.0	1.44
Tier 3	2,178	75,529	19%	4.3	0.82
Tier 4	517	23,336	5.90%	1.1	0.068
Total both	**9,898**	**395,233**	**100%**		**5.54**

Emission factors for particulate matter (PM_{10}), HC, and CO were calculated using the tier-specific emission rates for those pollutants published by USEPA[13] to develop weighted average emission factors using the MWh figures provided in the railroads' submissions. These results are presented in Table 5.4.

Table 5.4: Fleet MWh and PM, HC, CO Emission Factors, g/hp-hr

Engine Tier	MWh	% of MWh	EPA Tier-specific			Fleet Composite		
			PM_{10}	HC (g/bhp-hr)	CO	PM_{10}	HC (g/bhp-hr)	CO
Pre-Tier 0	1,629	0%	0.32	0.48	1.28	0.001	0.00	0.01
Tier 0	9,912	3%	0.32	0.48	1.28	0.008	0.01	0.03
Tier 1	170,445	43%	0.32	0.47	1.28	0.138	0.20	0.55
Tier 2	114,382	29%	0.18	0.26	1.28	0.052	0.08	0.37
Tier 3	75,529	19%	0.08	0.13	1.28	0.015	0.03	0.25
Tier 4	23,336	6%	0.015	0.04	1.28	0.000	0.00	0.08
Total	**395,233**	**100%**				**0.214**	**0.32**	**1.28**

Emission factors for $PM_{2.5}$ and DPM were calculated as fractions of PM_{10}, with $PM_{2.5}$ calculated as 94% of PM_{10} consistent with CARB methodology and DPM equal to PM_{10} because all PM emissions from diesel engines are defined as DPM. Rounding of emission factors before and after the conversion resulted in the emission factor values shown. Table 5.5 summarizes the emission factors for line haul locomotives, presented in units of g/bhp-hr.

Table 5.5: Emission Factors for Line Haul Locomotives, g/bhp-hr

	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4
EF, g/bhp-hr	0.214	0.197	0.214	5.54	0.005	1.28	0.32	489	0.013	0.040

[13] EPA Office of Transportation and Air Quality, "Emission Factors for Locomotives" EPA-420-F-09-025 April 2009.

On-Port Line Haul Activity
As described in the San Pedro Bay Ports Emissions Inventory Methodology Report, estimates of the number of trains per year, locomotives per train, and on-port hours per train are multiplied together to calculate total locomotive hours per year. This activity information for 2023 is summarized in Table 5.6.

Table 5.6: 2023 Estimated On-Port Line Haul Locomotive Activity

Activity Measure	Inbound	Outbound	Total
Trains per Year	1,979	1,802	3,781
Locomotives per Train	3	3	N/A
Hours on Port per Trip	1	2.5	N/A
Locomotive Hours per Year	5,937	13,515	19,452

Out-of-Port Line Haul Activity
Table 5.7 lists the estimated totals of travel distance, out-of-port trains per year, out-of-port million gross tons (MMGT), out-of-port MMGT-miles, gallons of fuel used, and horsepower-hours. Fuel consumption is calculated by multiplying gross ton-miles by the average fuel consumption factor of 0.957 gallons per thousand gross ton-miles.[14] Overall horsepower hours are calculated by multiplying the fuel used by the fuel consumption conversion factor of 20.8 hp-hr/gal.

Table 5.7: 2023 Gross Ton-Mile, Fuel Use, and Horsepower-hour Estimate

	Distance miles	Trains per year	MMGT per year	MMGT-miles per year
Alameda Corridor	21	3,587	27	567
Central LA to Air Basin Boundary	84	3,587	27	2,268
Million gross ton-miles				**2,835**
Estimated gallons of fuel (millions)				**2.70**
Estimated million horsepower-hours				**56.2**

[14] Union Pacific, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2023,* and BNSF, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2023, www.stb.gov/reports-data/economic-data/annual-report-financial-data/*

SECTION 6 HEAVY-DUTY VEHICLES

Source Description

Heavy-duty vehicles (HDVs), or trucks, are used to move cargo, to and from the marine terminals. Trucks also transfer containers between terminals and off-port railcar loading facilities. The local activity is often referred to as drayage. During their daily operations, trucks are driven onto and through the terminals, where they deliver and/or pick up cargo. They are also driven on the public roads within the Port boundaries and on the public roads outside the Port.

The majority (93%) of trucks that service the Port's terminals are diesel-fueled vehicles. Approximately 6% of the trucks that called are alternatively fueled trucks, including compressed and liquefied natural gas (CNG and LNG). The emission estimates prepared using this methodology reflect the use of diesel and natural gas fuel. In addition, 0.83% of the trucks were battery electric zero emissions trucks in 2023.

Emissions Estimation Methodology

The methodology used to estimate 2023 emissions from HDVs is described in Section 6 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 5. HDV emission estimates are based on estimates of vehicle miles traveled (VMT), average speeds, CARB's on-road vehicle Emission Factors model (EMFAC) and HDV model year information specific to the San Pedro Bay ports. The most recent version of the model, EMFAC2021, reflects CARB's current understanding of motor vehicle travel activities and their associated emission levels. A new feature of this version of the model is the ability to produce emission factors for natural gas fueled trucks in addition to the more common diesel fueled trucks.

Geographical Domain

Two major geographical components of truck activities were evaluated for this inventory:

- **On-terminal operations**, which include waiting for terminal entry, transiting the terminal to drop off and/or pick up cargo, and departing the terminals.

- **On-road operations**, consisting of travel on public roads within the SoCAB. This also includes travel on public roads within the Port boundaries and those of the adjacent Port of Los Angeles (POLA). The activity of on-road trucks included within the geographical domain is from the Port to the cargo's first point of rest within SoCAB or up to the basin boundary, whichever comes first.

Data and Information Acquisition

Information regarding the activity of trucks while they are on terminal, such as average times and distances traveled through the terminal, is collected during in-person and/or telephone interviews with terminal personnel. For on-road operations, the volumes (number of trucks), distances, and average speeds on roadway segments between defined intersections are estimated using trip generation and travel demand models that have been developed for these purposes. The trip generation model is used to develop truck trip numbers for container terminals, while the terminal operator interviews are used to obtain trip counts associated with non-container terminals.

The model year distribution of HDVs operating at the Port is developed using radio frequency identification (RFID) call information gathered at the San Pedro Bay Ports' container terminals and truck/engine model year data from the Port Drayage Truck Registry (PTDR). The RFID call information is only collected at container terminals, so it is assumed for the inventory that trucks calling at other Port terminals have the same general distribution of model years.

Emission Estimates

Tables 6.1 through 6.3 summarize the vehicle miles traveled and emissions associated with overall HDV activity, emissions associated with container terminal activity, and emissions associated with other Port terminals, respectively.

Table 6.1: 2023 HDV Emissions, tons and metric tons

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
On-Terminal	4,077,662	0.1	0.1	0.1	125	0.3	164.6	17.7	37,159
On-Road	186,206,260	3.0	2.9	3.0	190	2.8	82.3	12.9	290,762
Total	**190,283,922**	**3.1**	**2.9**	**3.0**	**316**	**3.1**	**246.9**	**30.7**	**327,921**

Table 6.2: 2023 HDV Emissions Associated with Container Terminals, tons and metric tons

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
On-Terminal	3,966,151	0.1	0.1	0.1	121	0.3	158.3	17.1	35,840
On-Road	155,261,958	2.5	2.4	2.5	160	2.3	69.1	10.8	242,626
Total	**159,228,108**	**2.6**	**2.4**	**2.5**	**281**	**2.6**	**227.4**	**27.9**	**278,466**

Table 6.3: 2023 HDV Emissions Associated with Non-Container Port Terminals, tons and metric tons

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
On-Terminal	111,511	0.002	0.002	0.002	5	0.012	6.3	0.7	1,319
On-Road	30,944,303	0.5	0.5	0.5	30	0.5	13.2	2.1	48,136
Total	**31,055,814**	**0.5**	**0.5**	**0.5**	**34**	**0.5**	**19.5**	**2.8**	**49,455**

Operational Profiles

To estimate the 2023 emissions from HDVs, operational profiles were developed for on-terminal truck activity using data and information collected from terminal operators. The on-road truck activity profiles were developed using trip generation and travel demand models to estimate the number of on-road VMT.

The model year distribution of HDVs was determined using RFID information collected at Port terminals to track the number of truck calls, and truck model year information from the Ports Drayage Truck Registry (PDTR). The distribution of the model years of the trucks that called at the SPBP terminals during 2023 is presented in Figure 6.1. The call weighted average age of the trucks in 2023 was approximately 6 years.

Figure 6.1: 2023 Model Year Distribution of HDV Fleet

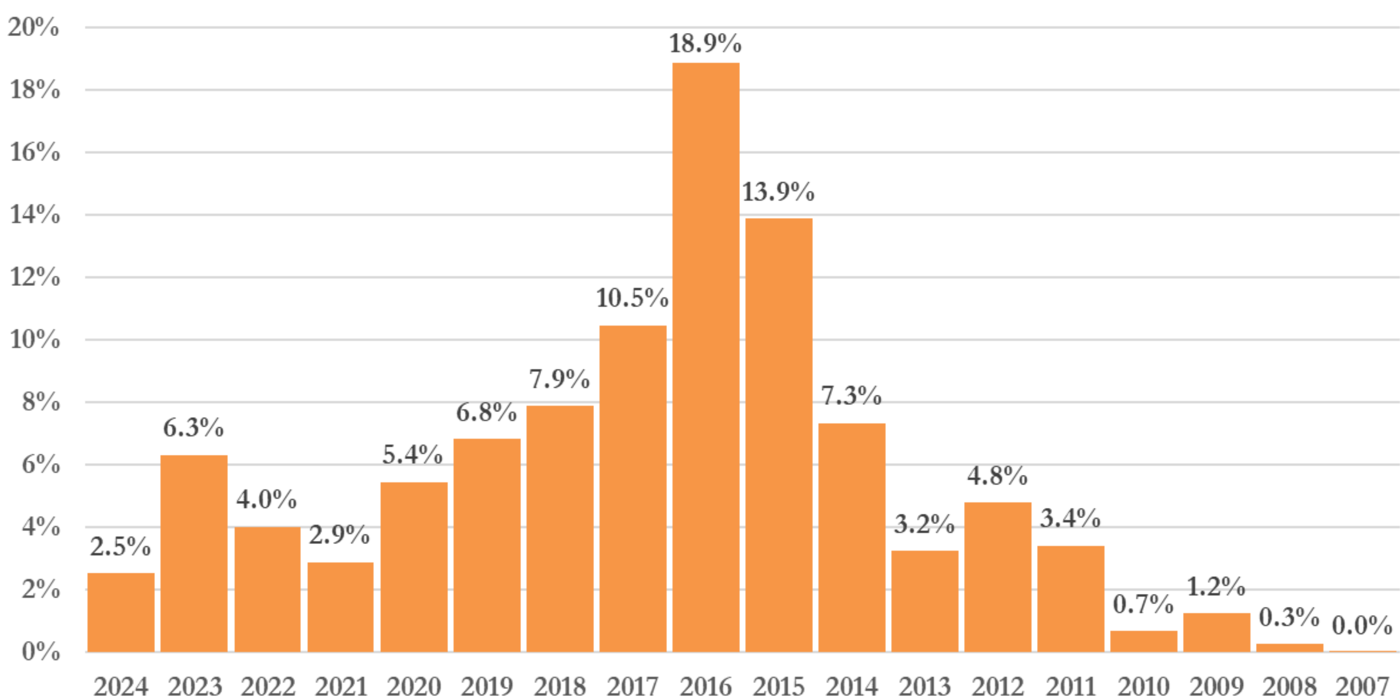


Table 6.4 shows the range and average of reported operating characteristics of on-terminal truck activities at Port container terminals, including speed, distance driven, and total time on terminal including terminal entry queuing. Table 6.5 shows the same summary data for non-container terminals and facilities. Trucks may have wait times when coming into the terminal and also on their way out. Once inside the terminal, there is also time involved loading and/or unloading cargo.

Table 6.4: 2023 Summary of Reported Container Terminal Operating Characteristics

	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	15	3.5	1.51
Minimum	7	0.5	0.58
Average	10	1.4	1.07

Table 6.5: 2023 Summary of Reported Non-Container Facility Operating Characteristics

	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	10	0.5	0.55
Minimum	5	0.0	0.00
Average	7	0.2	0.13

In 2023, a of total 3,329,616 truck calls were associated with container terminals and 492,879 truck calls were associated with non-container facilities. The total number of truck calls associated with container terminals is estimated by the trip generation model on which truck travel VMT estimates are based, while non-container terminal truck calls were obtained from the terminal operators. The non-container terminal number includes activity at the Port's overflow container and chassis support facilities that operated in 2023, totaling approximately 285,016 calls. The chassis yards are used for pickup, delivery and maintenance of chassis while the short-term overflow container facilities help streamline movement of cargo during peak season.

Table 6.6 provides the on-terminal operating parameters, listing total estimated VMT and hours of idling on-terminal and waiting at entry gates. The idling times are likely to be over-estimated because the idling estimates are based on the entire time that trucks are on terminal (except for driving time), which does not account for times that trucks are turned off while on terminal. To date, no other data sources have been identified to provide a reliable estimate of the average percentage of time the trucks' engines are turned off while on terminal.

Table 6.6: 2023 Estimated On-Terminal VMT and Idling Hours by Terminal

Terminal Type	Total Miles Traveled	Total Hours Idling (all trips)
Container	1,416,503	611,120
Container	846,369	597,160
Container	615,909	1,116,848
Container	518,246	601,165
Container	405,942	181,321
Container	163,182	447,119
Auto	5,440	9,350
Break Bulk	3,500	2,940
Break Bulk	2,500	800
Break Bulk	1,500	0
Break Bulk	600	120
Break Bulk	20	0
Dry Bulk	12,920	680
Dry Bulk	5,078	0
Dry Bulk	1,132	906
Dry Bulk	321	186
Dry Bulk	40	440
Liquid Bulk	5,400	4,320
Liquid Bulk	3,125	375
Liquid Bulk	1,350	0
Other	63,143	118,708
Other	4,994	4,245
Other	448	1,270
Total	**4,077,662**	**3,699,074**

Table 6.7 summarizes the speed bin composite emission factors developed from the EMFAC2021 model and the port-specific model year distribution. These composite emission factors are developed using model year specific emission factors for the T7 POLA vehicle category of EMFAC2021 which also applies to drayage trucks calling at POLB terminals. They reflect the use of diesel and natural gas fuel model year distribution, based on evaluation of the CTP activity records and the Port Drayage Truck Registry (PDTR).

Table 6.7: 2023 Speed-Specific Composite Exhaust Emission Factor, g/hr and g/mi

Speed range (mph)		PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4	Units
Idle		0.0069	0.0066	0.0039	23.0445	0.0531	38.0907	3.8895	6,405	0.9325	0.2288	g/hr
> 0	5	0.0100	0.0096	0.0095	9.4561	0.0297	2.5641	0.6148	3,372	0.5422	0.5050	g/mi
5	10	0.0087	0.0083	0.0083	6.8028	0.0254	2.0285	0.4024	2,870	0.4610	0.3345	g/mi
10	15	0.0072	0.0069	0.0068	4.5075	0.0208	1.5145	0.2369	2,344	0.3760	0.1996	g/mi
15	20	0.0063	0.0060	0.0060	3.4471	0.0183	1.2129	0.1671	2,052	0.3288	0.1422	g/mi
20	25	0.0059	0.0057	0.0057	2.6806	0.0167	1.0010	0.1297	1,869	0.2992	0.1105	g/mi
25	30	0.0063	0.0060	0.0061	2.0309	0.0155	0.8238	0.1058	1,728	0.2766	0.0904	g/mi
30	35	0.0074	0.0071	0.0073	1.5235	0.0145	0.6736	0.0890	1,620	0.2592	0.0765	g/mi
35	40	0.0093	0.0089	0.0092	1.1578	0.0139	0.5497	0.0768	1,544	0.2469	0.0663	g/mi
40	45	0.0120	0.0114	0.0119	0.9324	0.0135	0.4521	0.0678	1,498	0.2394	0.0586	g/mi
45	50	0.0154	0.0147	0.0153	0.8475	0.0134	0.3804	0.0611	1,482	0.2366	0.0525	g/mi
50	55	0.0195	0.0187	0.0195	0.9031	0.0135	0.3346	0.0562	1,496	0.2387	0.0476	g/mi
55	60	0.0245	0.0234	0.0244	1.1022	0.0140	0.3314	0.0570	1,543	0.2462	0.0476	g/mi
60	65	0.0301	0.0288	0.0301	1.4417	0.0147	0.3352	0.0585	1,620	0.2583	0.0477	g/mi
65	70	0.0301	0.0288	0.0301	1.4485	0.0147	0.3354	0.0585	1,620	0.2583	0.0477	g/mi

SECTION 7 SUMMARY OF 2023 EMISSION RESULTS

The Port of Long Beach 2023 Air Emissions Inventory results are presented in this section. Table 7.1 summarizes the 2023 air emissions associated with the goods movement-related sources at the Port, by category.

Table 7.1: 2023 Emissions by Source Category, tons and metric tons

Category	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
Ocean going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**

Table 7.2 shows the emissions percent contribution by source category. Of the total port wide emission sources, ocean-going vessels are the largest source of DPM, NO_x and SO_x emissions. Rail locomotives are the second highest source of DPM and NO_x emissions. HDV is the highest source of CO_2e emissions, followed by ocean-going vessels.

Table 7.2: 2023 Emissions Percent Contributions by Source Category

Source Category	DPM		NO_x		SO_x		CO_2e	
	tons	%	tons	%	tons	%	MT	%
Ocean going vessels	38	54%	3,120	71%	165	97.0%	308,086	38%
Harbor craft	5	8%	296	7%	0	0.2%	35,740	4%
Cargo handling equipment	6	8%	159	4%	1	0.7%	98,651	12%
Rail locomotives	19	26%	503	11%	0	0.3%	41,677	5%
Heavy-duty vehicles	3	4%	316	7%	3	1.8%	327,921	40%
Total	**71**	**100%**	**4,394**	**100%**	**170**	**100%**	**812,074**	**100%**

To place the maritime industry-related emissions into context, the following figures compare the Port's contributions to the total emissions in the South Coast Air Basin by emission source category.

Figure 7.1: 2023 PM_{10} Emissions in the South Coast Air Basin, %

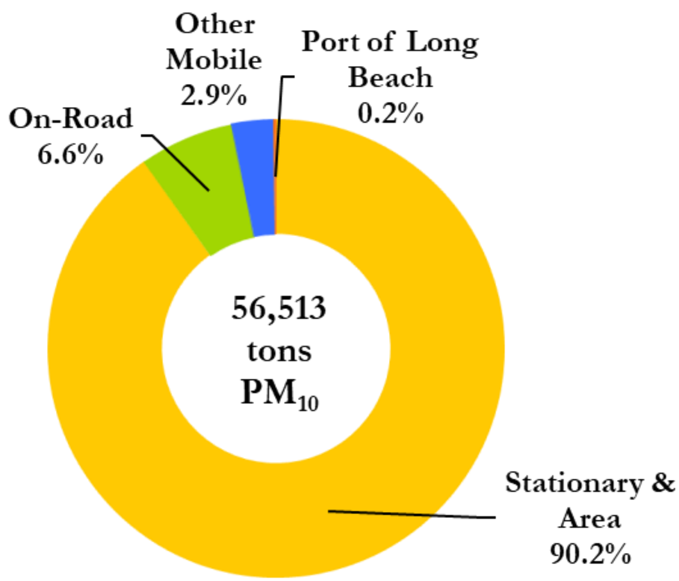


Figure 7.2: 2023 $PM_{2.5}$ Emissions in the South Coast Air Basin, %

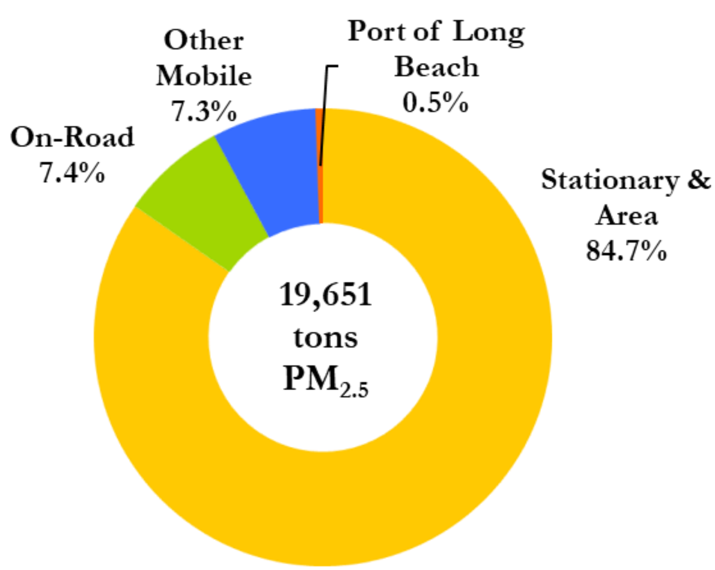


Figure 7.3: 2023 DPM Emissions in the South Coast Air Basin, %

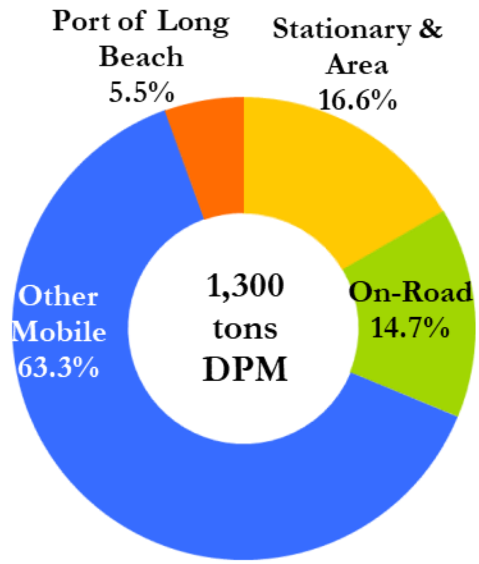


Figure 7.4: 2023 NO_x Emissions in the South Coast Air Basin, %

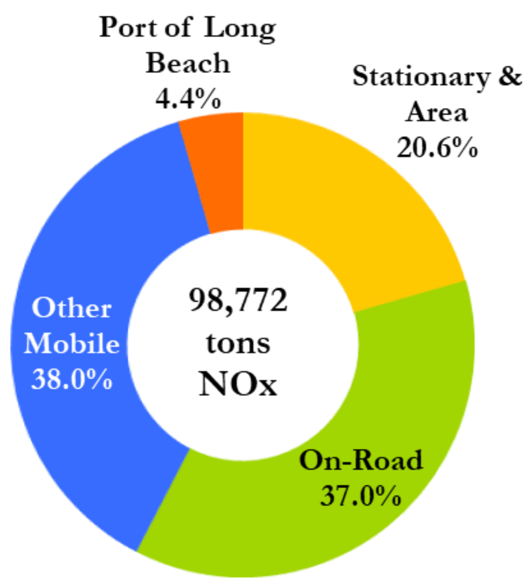
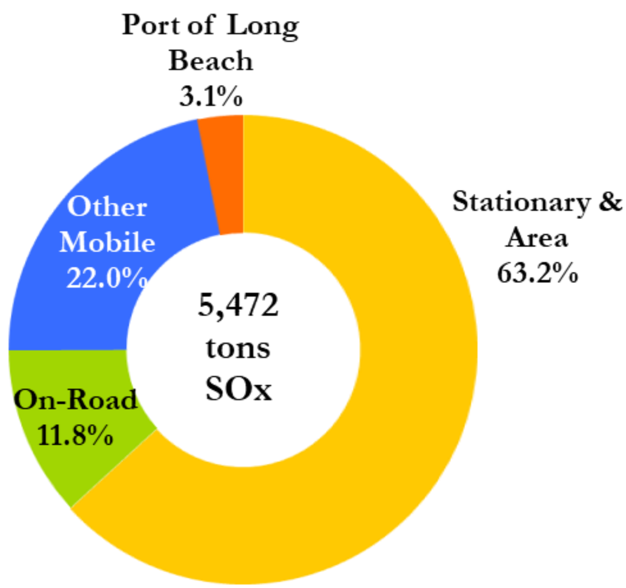


Figure 7.5: 2023 SO_x Emissions in the South Coast Air Basin, %



Tables 7.3 through 7.8 list the percent emissions contribution. The 2023 SoCAB emissions are based on the 2022 AQMP Appendix III[15], except for the SoCAB on-road emission estimates which were updated to take into consideration EMFAC2021[16]. Thus, the SoCAB total emissions shown on the bottom row of the tables do not exactly match 2022 AQMP Appendix III values. It should be noted that SoCAB on-road heavy-duty diesel PM_{10} and $PM_{2.5}$ emissions do not include brake and tire wear emissions consistent with the Port's HDV emissions.

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[15]SCAQMD, *2022 AQMP Appendix III, Base & Future Year Emission Inventory*, adopted December 2022. Except on-road emissions based on EMFAC2014 are replaced with EMFAC2021 estimates. *www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan*.
[16]ARB, *www.arb.ca.gov/emfac/*

Table 7.3: 2023 PM_{10} Emissions Contribution, tons and %

			Percent PM_{10} Emissions of Total		
Category	**Subcategory**	**PM_{10}**	**Category**	**Port**	**SoCAB AQMP**
OGV	Auto carrier	2	2%	1%	0.0%
OGV	Bulk vessel	6	8%	5%	0.0%
OGV	Containership	19	25%	17%	0.0%
OGV	Cruise	6	8%	5%	0.0%
OGV	General cargo	1	1%	1%	0.0%
OGV	RoRo	1	2%	1%	0.0%
OGV	Tanker	40	54%	37%	0.1%
OGV	**Subtotal**	**74**	**100%**	**69%**	**0.1%**
Harbor Craft	Assist tug	1	22%	1%	0.0%
Harbor Craft	ATB	0	3%	0%	0.0%
Harbor Craft	Barge	0	9%	0%	0.0%
Harbor Craft	Harbor tug	1	14%	1%	0.0%
Harbor Craft	Ferry	1	22%	1%	0.0%
Harbor Craft	Ocean tugboat	1	13%	1%	0.0%
Harbor Craft	Government	0	3%	0%	0.0%
Harbor Craft	Excursion	0	3%	0%	0.0%
Harbor Craft	Crewboat	1	10%	0%	0.0%
Harbor Craft	Work boat	0	1%	0%	0.0%
Harbor Craft	**Subtotal**	**5**	**100%**	**5%**	**0.0%**
CHE	RTG crane	0.4	7%	0%	0.0%
CHE	Forklift	0.3	4%	0%	0.0%
CHE	Top handler, side pick	2.6	39%	2%	0.0%
CHE	Other	0.4	6%	0%	0.0%
CHE	Yard tractor	3.1	45%	3%	0.0%
CHE	**Subtotal**	**7**	**100%**	**6%**	**0.0%**
Locomotives	Switching	0	2%	0%	0.0%
Locomotives	Line haul	19	98%	17%	0.0%
Locomotives	**Subtotal**	**19**	**100%**	**17%**	**0.0%**
HDV	On-Terminal	0.1	2%	0%	0.0%
HDV	On-road	3.0	98%	3%	0.0%
HDV	**Subtotal**	**3**	**100%**	**3%**	**0.0%**
Port	**Total**	**109**		**100%**	**0.2%**
SoCAB AQMP	**Total**	**56,513**			

Table 7.4: 2023 $PM_{2.5}$ Emissions Contribution, tons and %

Category	Subcategory	$PM_{2.5}$	Percent $PM_{2.5}$ Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	1	2%	1%	0.01%
OGV	Bulk vessel	5	8%	5%	0.03%
OGV	Containership	17	25%	17%	0.09%
OGV	Cruise	5	8%	5%	0.03%
OGV	General cargo	1	1%	1%	0.00%
OGV	RoRo	1	2%	1%	0.01%
OGV	Tanker	37	54%	37%	0.19%
OGV	**Subtotal**	**68**	**100%**	**68%**	**0.35%**
Harbor Craft	Assist tug	1	22%	1%	0.01%
Harbor Craft	ATB	0	3%	0%	0.00%
Harbor Craft	Barge	0	9%	0%	0.00%
Harbor Craft	Harbor tug	1	15%	1%	0.00%
Harbor Craft	Ferry	1	22%	1%	0.01%
Harbor Craft	Ocean tugboat	1	13%	1%	0.00%
Harbor Craft	Government	0	3%	0%	0.00%
Harbor Craft	Excursion	0	3%	0%	0.00%
Harbor Craft	Crewboat	0	10%	0%	0.00%
Harbor Craft	Work boat	0	1%	0%	0.00%
Harbor Craft	**Subtotal**	**5**	**100%**	**5%**	**0.03%**
CHE	RTG crane	0.4	7%	0%	0.00%
CHE	Forklift	0.3	4%	0%	0.00%
CHE	Top handler, side pick	2.4	39%	2%	0.01%
CHE	Other	0.4	6%	0%	0.00%
CHE	Yard tractor	2.8	44%	3%	0.01%
CHE	**Subtotal**	**6**	**100%**	**6%**	**0.03%**
Locomotives	Switching	0	2%	0%	0.00%
Locomotives	Line haul	17	98%	17%	0.09%
Locomotives	**Subtotal**	**17**	**100%**	**17%**	**0.09%**
HDV	On-Terminal	0.1	2%	0%	0.00%
HDV	On-road	2.9	98%	3%	0.01%
HDV	**Subtotal**	**3**	**100%**	**3%**	**0.01%**
Port	**Total**	**100**		**100%**	**0.5%**
SoCAB AQMP	**Total**	**19,651**			

Table 7.5: 2023 DPM Emissions Contribution, tons and %

Category	Subcategory	DPM	Percent DPM Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	1	4%	2%	0.1%
OGV	Bulk vessel	4	11%	6%	0.3%
OGV	Containership	10	26%	14%	0.8%
OGV	Cruise	5	14%	7%	0.4%
OGV	General cargo	1	2%	1%	0.1%
OGV	RoRo	0	1%	0%	0.0%
OGV	Tanker	16	42%	23%	1.2%
OGV	**Subtotal**	**38**	**100%**	**54%**	**2.9%**
Harbor Craft	Assist tug	1	22%	2%	0.1%
Harbor Craft	ATB	0	3%	0%	0.0%
Harbor Craft	Barge	0	9%	1%	0.0%
Harbor Craft	Harbor tug	1	15%	1%	0.1%
Harbor Craft	Ferry	1	22%	2%	0.1%
Harbor Craft	Ocean tugboat	1	13%	1%	0.1%
Harbor Craft	Government	0	3%	0%	0.0%
Harbor Craft	Excursion	0	3%	0%	0.0%
Harbor Craft	Crewboat	1	10%	1%	0.0%
Harbor Craft	Work boat	0	1%	0%	0.0%
Harbor Craft	**Subtotal**	**5**	**100%**	**8%**	**0.4%**
CHE	RTG crane	0.4	8%	1%	0.0%
CHE	Forklift	0.2	4%	0%	0.0%
CHE	Top handler, side pick	2.6	47%	4%	0.2%
CHE	Other	0.4	7%	1%	0.0%
CHE	Yard tractor	2.0	35%	3%	0.2%
CHE	**Subtotal**	**6**	**100%**	**8%**	**0.4%**
Locomotives	Switching	0	2%	1%	0.0%
Locomotives	Line haul	19	98%	26%	1.4%
Locomotives	**Subtotal**	**19**	**100%**	**26%**	**1.4%**
HDV	On-Terminal	0.1	2%	0%	0.0%
HDV	On-road	3.0	98%	4%	0.2%
HDV	**Subtotal**	**3**	**100%**	**4%**	**0.2%**
Port	**Total**	**71**		**100%**	**5.5%**
SoCAB AQMP	**Total**	**1,300**			

Table 7.6: 2023 NO_x Emissions Contribution, tons and %

Category	Subcategory	NO_x	Percent NO_x Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	109	3%	2%	0.1%
OGV	Bulk vessel	299	10%	7%	0.3%
OGV	Containership	1,012	32%	23%	1.0%
OGV	Cruise	367	12%	8%	0.4%
OGV	General cargo	54	2%	1%	0.1%
OGV	RoRo	32	1%	1%	0.0%
OGV	Tanker	1,248	40%	28%	1.3%
OGV	**Subtotal**	**3,120**	**100%**	**71%**	**3.2%**
Harbor Craft	Assist tug	67.1	23%	2%	0.1%
Harbor Craft	ATB	5.9	2%	0%	0.0%
Harbor Craft	Barge	14.2	5%	0%	0.0%
Harbor Craft	Harbor tug	43.7	15%	1%	0.0%
Harbor Craft	Ferry	66.3	22%	2%	0.1%
Harbor Craft	Ocean tugboat	44.6	15%	1%	0.0%
Harbor Craft	Government	11.2	4%	0%	0.0%
Harbor Craft	Excursion	7.9	3%	0%	0.0%
Harbor Craft	Crewboat	32.3	11%	1%	0.0%
Harbor Craft	Work boat	2.7	1%	0%	0.0%
Harbor Craft	**Subtotal**	**296**	**100%**	**7%**	**0.3%**
CHE	RTG crane	20.6	13%	0%	0.0%
CHE	Forklift	9.9	6%	0%	0.0%
CHE	Top handler, side pick	60.2	38%	1%	0.1%
CHE	Other	9.4	6%	0%	0.0%
CHE	Yard tractor	59.2	37%	1%	0.1%
CHE	**Subtotal**	**159**	**100%**	**4%**	**0.2%**
Locomotives	Switching	23	5%	1%	0.0%
Locomotives	Line haul	480	95%	11%	0.5%
Locomotives	**Subtotal**	**503**	**100%**	**11%**	**0.5%**
HDV	On-Terminal	125	40%	3%	0.1%
HDV	On-road	190	60%	4%	0.2%
HDV	**Subtotal**	**316**	**100%**	**7%**	**0.3%**
Port	**Total**	**4,394**		**100%**	**4.4%**
SoCAB AQMP	**Total**	**98,772**			

Table 7.7: 2023 SO_x Emissions Contribution, tons and %

Category	Subcategory	SO_x	Percent SO_x Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	3	2%	2%	0%
OGV	Bulk vessel	13	8%	8%	0%
OGV	Containership	35	21%	21%	1%
OGV	Cruise	14	8%	8%	0%
OGV	General cargo	2	1%	1%	0%
OGV	RoRo	3	2%	2%	0%
OGV	Tanker	95	57%	56%	2%
OGV	**Subtotal**	**165**	**100%**	**97.2%**	**3%**
Harbor Craft	Assist tug	0.08	24%	0%	0%
Harbor Craft	ATB	0.01	2%	0%	0%
Harbor Craft	Barge	0.02	6%	0%	0%
Harbor Craft	Harbor tug	0.05	15%	0%	0%
Harbor Craft	Ferry	0.09	26%	0%	0%
Harbor Craft	Ocean tugboat	0.04	10%	0%	0%
Harbor Craft	Government	0.01	4%	0%	0%
Harbor Craft	Excursion	0.01	2%	0%	0%
Harbor Craft	Crewboat	0.04	10%	0%	0%
Harbor Craft	Work boat	0.00	1%	0%	0%
Harbor Craft	**Subtotal**	**0.35**	**100%**	**0%**	**0%**
CHE	RTG crane	0.1	4%	0%	0%
CHE	Forklift	0.0	3%	0%	0%
CHE	Top handler, side pick	0.4	35%	0%	0%
CHE	Other	0.0	4%	0%	0%
CHE	Yard tractor	0.6	54%	0%	0%
CHE	**Subtotal**	**1.17**	**100%**	**1%**	**0%**
Locomotives	Switching	0.00	0%	0%	0%
Locomotives	Line haul	0.40	100%	0%	0%
Locomotives	**Subtotal**	**0.40**	**100%**	**0%**	**0%**
HDV	On-Terminal	0.33	11%	0%	0%
HDV	On-road	2.76	89%	2%	0%
HDV	**Subtotal**	**3.10**	**100%**	**2%**	**0%**
Port	**Total**	**170**		**100%**	**3.1%**
SoCAB AQMP	**Total**	**5,472**			

Table 7.8: 2023 CO_2e Emissions Contribution, metric tons and %

Category	Subcategory	CO_2e	Percent Emissions of Total Category	Port
OGV	Auto carrier	5,829	2%	1%
OGV	Bulk vessel	22,087	7%	3%
OGV	Containership	81,942	27%	10%
OGV	Cruise	20,551	7%	3%
OGV	General cargo	3,395	1%	0%
OGV	RoRo	5,695	2%	1%
OGV	Tanker	168,586	55%	21%
OGV	**Subtotal**	**308,086**	**100%**	**38%**
Harbor Craft	Assist tug	8,467	24%	1%
Harbor Craft	ATB	636	2%	0%
Harbor Craft	Barge	2,169	6%	0%
Harbor Craft	Harbor tug	5,242	15%	1%
Harbor Craft	Ferry	9,266	26%	1%
Harbor Craft	Ocean tugboat	3,657	10%	0%
Harbor Craft	Government	1,473	4%	0%
Harbor Craft	Excursion	836	2%	0%
Harbor Craft	Crewboat	3,602	10%	0%
Harbor Craft	Work boat	391	1%	0%
Harbor Craft	**Subtotal**	**35,740**	**100%**	**4%**
CHE	RTG crane	4,584	5%	1%
CHE	Forklift	3,004	3%	0%
CHE	Top handler, side pick	36,563	37%	5%
CHE	Other	4,116	4%	1%
CHE	Yard tractor	50,385	51%	6%
CHE	**Subtotal**	**98,651**	**100%**	**12%**
Locomotives	Switching	2,846	7%	0%
Locomotives	Line haul	38,831	93%	5%
Locomotives	**Subtotal**	**41,677**	**100%**	**5%**
HDV	On-Terminal	37,159	11%	5%
HDV	On-road	290,762	89%	36%
HDV	**Subtotal**	**327,921**	**100%**	**40%**
Port	**Total**	**812,074**		**100%**

SECTION 8 COMPARISON OF 2023 AND PRIOR YEARS' FINDINGS AND EMISSION ESTIMATES

Emissions Comparison 2023 vs 2005

This section provides a comparison of the emission estimates for 2023 and 2005 by source category. The baseline year used to compare every annual inventory is 2005.

Table 8.1: 2005-2023 Port Emissions Comparison by Source Category, tons, metric tons and %

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
2005								
Ocean-going vessels	840	673	569	6,676	6,815	463	224	385,219
Harbor craft	36	35	36	699	3	225	54	35,005
Cargo handling equipment	33	30	33	1,165	11	363	75	103,717
Locomotives	43	40	43	1,273	76	179	66	60,579
Heavy-duty vehicles	205	196	205	5,273	37	1,523	318	391,610
Total	**1,157**	**974**	**887**	**15,085**	**6,943**	**2,752**	**738**	**976,130**
2023								
Ocean-going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**
Change between 2005 and 2023 (percent)								
Ocean-going vessels	-91%	-90%	-93%	-53%	-98%	-37%	-44%	-20%
Harbor craft	-85%	-85%	-85%	-58%	-88%	-73%	-77%	2%
Cargo handling equipment	-79%	-79%	-83%	-86%	-90%	113%	-63%	-5%
Locomotives	-56%	-57%	-56%	-60%	-99%	-33%	-56%	-31%
Heavy-duty vehicles	-98%	-99%	-99%	-94%	-92%	-84%	-90%	-16%
Total	**-91%**	**-90%**	**-92%**	**-71%**	**-98%**	**-46%**	**-70%**	**-17%**

Table 8.2 provides a comparison of the number of vessel calls and container cargo throughput as well as the average TEUs per containership call between 2005 and 2023. Compared to 2005, container throughput is up 20%, while overall containership arrivals to POLB are down 46%. The average number of containers per containership is 11,168 TEU per containership call in 2023, indicative of larger containerships calling at POLB.

Table 8.2: Container Throughput and Vessel Call Comparison

Year	Container Throughput (TEU)	All Arrivals	Containership Arrivals	Average TEU per Call
2005	6,709,818	2,617	1,332	5,037
2017	7,544,507	2,157	959	7,867
2022	9,133,657	2,068	901	10,137
2023	8,018,668	1,879	718	11,168
2023 vs 2005	**20%**	**-28%**	**-46%**	**122%**
2023 vs 2017	**6%**	**-13%**	**-25%**	**42%**
2023 vs 2022	**-12%**	**-9%**	**-20%**	**10%**

Table 8.3 presents the total net change in emissions for all pollutants. Emissions are lower for all pollutants compared to baseline 2005 and previous year.

Table 8.3: Emissions Comparison, tons, metric tons and %

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2005	1,157	974	887	15,085	6,943	2,752	738	976,130
2017	125	115	91	6,686	213	1,285	281	825,858
2022	124	115	83	5,533	192	1,990	264	966,839
2023	109	100	71	4,394	170	1,491	225	812,074
CAAP Progress	**-91%**	**-90%**	**-92%**	**-71%**	**-98%**	**-46%**	**-70%**	**-17%**
2023 vs 2017	**-13%**	**-13%**	**-22%**	**-34%**	**-20%**	**16%**	**-20%**	**-2%**
Previous Year	**-13%**	**-13%**	**-14%**	**-21%**	**-11%**	**-25%**	**-15%**	**-16%**

The following paragraphs summarize the overall reasons for the differences in 2005 and 2023 emissions by source category.

Ocean-Going Vessels
Emissions from OGVs were lower in 2023 compared to 2005 levels as a result of significantly increased participation in the Port's Green Flag incentive and Green Ship Incentive programs, CARB's low sulfur marine fuel regulation requiring distillate fuels used by ocean going vessels with a maximum sulfur content of 0.1%, North American Emission Control Area (ECA), and implementation of the CARB's control measure for OGVs at-berth regulations. Fewer vessel calls

due to increased vessel efficiency and the deployment of larger container vessels has resulted in lower emissions in 2023 compared to 2022.

Harbor Craft
Harbor craft emissions decreased for all pollutants except CO_2e. The decrease is due to the turnover to newer engines which have lower emission standards and the use of lower sulfur content fuel. Between 2005 and 2023, fleet turnover was accelerated as a result of CARB's in-use harbor craft regulations and grant funding made available, such as Carl Moyer and EPA grants, for the replacement of older engines with newer and cleaner engines. CO_2e emissions are not influenced from the introduction of cleaner engines for NO_x and PM because the engines do not have lower standards for CO_2. In 2023, all harbor craft used renewable diesel per the CARB Commercial Harbor Craft (CHC) Regulation which lowered most pollutants, especially PM and NO_x emissions.

Cargo Handling Equipment
Cargo handling equipment emissions decreased for all pollutants, except for CO. The decrease is due to fleet turnover to newer CHE which have lower emission standards and use of lower sulfur content fuel. Since 2005, fleet turnover accelerated as a result of the continued replacement and retrofit of existing equipment with cleaner engines and implementation of CAAP Tier 4 measures, green leases, grant funding, and the CARB in-use CHE regulation. The increase in CO emissions from cargo handling equipment is attributed to the increased activity of gasoline fueled equipment with higher CO emission rates compared to diesel equipment. In 2023, several container terminals used renewable diesel, which lower CO_2e tailpipe emissions.

Locomotives
Emissions from rail locomotives were lower in 2023 compared to 2005 due in part to the turnover of locomotives to cleaner ultra-low emissions switching locomotives in the PHL and UP fleets. In addition, use of cleaner fuels and cleaner line haul locomotives by both UP and BNSF contributed to the reduced emissions.

Heavy-Duty Vehicles
Truck emissions were significantly lower in 2023 compared to 2005 due to the implementation of the Port's Clean Trucks Program that progressively banned older, higher-emitting trucks from Port terminals. The most recent stage requires that newly registered trucks must be model year 2014 or newer. In 2023, the share of mileage driven by 2014 and newer model year trucks increased to 86% which shows the impact of the Port Tariff on the drayage trucks working at the Port and lowers NO_x and PM emissions. The CTP and engine emission standards are the reason for most reductions, including the particulate and NO_x decreases, while fuel sulfur standards, specifically the introduction of ultra-low sulfur diesel fuel (ULSD), are responsible for the SO_x reduction. Other factors include normal fleet turnover and decreased total vehicle miles travelled due to the increase in utilization of on-dock rail and changes in regional travel patterns since 2005.

Emissions Comparison to Previous Year

Between 2022 and 2023, OGV emissions decreased significantly as the goods movement system recovered from the COVID-19 impacts and the Port returned to normal operations. The decrease is due to fewer vessels at anchorage, as well as vessels spending less time at berth and at anchorage. Table 8.4 compares the 2023 emissions to the previous year which shows the emissions are lower in 2023 for all source categories except harbor craft.

Table 8.4: 2022-2023 Air Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
2022								
Ocean-going vessels	85	78	45	3,739	186	334	143	349,848
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	9	9	8	244	2	1,148	40	133,133
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**124**	**115**	**83**	**5,533**	**192**	**1,990**	**264**	**966,839**
2023								
Ocean-going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**
Change between 2022 and 2023 (percent)								
Ocean-going vessels	-12%	-12%	-15%	-17%	-11%	-13%	-13%	-12%
Harbor craft	-21%	-21%	-21%	-7%	8%	-2%	-3%	3%
Cargo handling equipment	-27%	-27%	-28%	-35%	-26%	-33%	-30%	-26%
Locomotives	0%	0%	0%	-1%	-3%	-3%	0%	-3%
Heavy-duty vehicles	-36%	-36%	-37%	-56%	-19%	-24%	-24%	-19%
Total	**-12%**	**-13%**	**-14%**	**-21%**	**-11%**	**-25%**	**-15%**	**-16%**

In 2023, there were 9% fewer vessel calls for both berth and anchorage than in 2022 and 17% lower shifts. Table 8.5 shows the shifts comparison and Table 8.6 shows the anchorage calls comparison.

Table 8.5: 2022-2023 Shifts Comparison

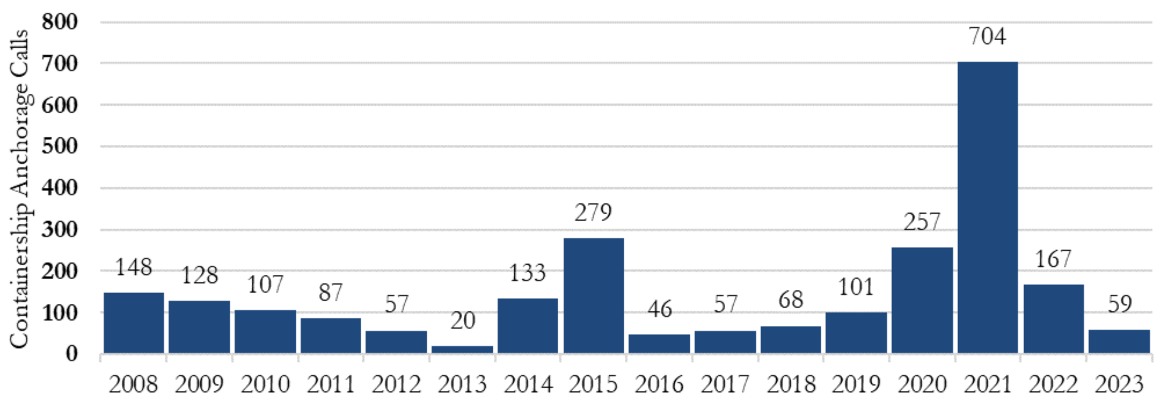
Vessel Type	2022 Shift	2023 Shift	2022-2023 Change
Containership	300	99	-67%
Tanker	953	968	2%
Cruise	1	2	100%
Bulk Carrier	304	211	-31%
Auto Carrier/RoRo	28	20	-29%
General cargo	37	48	30%
Total	**1,623**	**1,348**	**-17%**

Table 8.6: 2022-2023 Anchorage Calls Comparison

Vessel Type	2022 Anchorage	2023 Anchorage	2022-2023 Change
Containership	167	59	-65%
Tanker	690	742	8%
Cruise	1	2	100%
Bulk Carrier	246	172	-30%
Auto Carrier/RoRo	8	13	63%
General cargo	26	42	62%
Total	**1,138**	**1,030**	**-9%**

Figure 8.1 shows anchorage calls trend for containerships and illustrates the significant decrease in containerships at anchorage in 2023, which also results in fewer shifts. The lower shift and anchorage calls in 2023 contributed to the lower emissions for ocean going vessels.

Figure 8.1: Containership Anchorage Calls Trend



Calendar year 2023 saw a return to near normal port operations with lower container cargo throughput, lower vessel and anchorage calls and thus, lower activity. Below are source category specific explanations for the emission changes when comparing 2023 to 2022:

- For OGVs, the total calls were lower by 9% in 2023 and 20% lower for containerships. Vessel calls with propulsion engines that meet the Tier III NO_x emission standard continued to increase (11% in 2023). Tier 3 engines are 75% cleaner than the Tier II engine standard. In 2023, several vessels called the Port using LNG as a primary fuel and one vessel using methanol fuel called for the first time.

- For harbor craft, the vessel counts and total energy consumed (kWh) were higher in 2023 compared to 2022 due to the addition of more barges to the inventory to be consistent with CARB's CHC Regulation that includes barges. Renewable diesel was used for the first time in 2023 which lowered most pollutants, especially PM and NOx emissions.

- For CHE, the 2023 emissions are lower than 2022 due to lower equipment activity and continued equipment turnover to cleaner equipment including zero emissions equipment. In 2023, terminal operators continued to switch to renewable diesel.

- For locomotives, the emissions remained similar to the previous year. The switching locomotives used renewable diesel for the first time in 2023.

- For heavy-duty vehicles, the PM and NO_x emissions decreased due to continued fleet turnover to newer trucks in 2023. The share of mileage driven by 2014 and newer model year trucks continued to increase from 64% in 2022 to 86% in 2023.

Emissions Comparison to 2017

Table 8.7 presents the 2023 and 2017 emissions comparison by source category. TEU throughput is 6% higher in 2023 as compared to 2017. Except for harbor craft and HDV, emissions decreased in 2023 as compared to 2017 due to newer and cleaner equipment and trucks, reduced number of vessel calls, more vessels with Tier II and III engines, participation in ESI program, and use of renewable diesel by harbor craft.

Table 8.7: 2017-2023 Air Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e MT
2017								
Ocean-going vessels	80	73	47	4,312	208	337	146	315,522
Harbor craft	8	7	8	385	0	65	15	35,777
Cargo handling equipment	9	8	9	386	1	540	43	115,794
Locomotives	22	20	22	617	1	151	33	53,284
Heavy-duty vehicles	6	6	6	985	3	191	45	305,482
Total	**125**	**115**	**91**	**6,686**	**213**	**1,285**	**281**	**825,858**
2023								
Ocean-going vessels	74	68	38	3,120	165	292	125	308,086
Harbor craft	5	5	5	296	0	60	13	35,740
Cargo handling equipment	7	6	6	159	1	772	28	98,651
Locomotives	19	17	19	503	0	119	29	41,677
Heavy-duty vehicles	3	3	3	316	3	247	31	327,921
Total	**109**	**100**	**71**	**4,394**	**170**	**1,491**	**225**	**812,074**
Change between 2017 and 2023 (percent)								
Ocean-going vessels	-7%	-7%	-18%	-28%	-21%	-13%	-14%	-2%
Harbor craft	-30%	-29%	-30%	-23%	5%	-8%	-17%	0%
Cargo handling equipment	-26%	-26%	-34%	-59%	-14%	43%	-35%	-15%
Locomotives	-15%	-13%	-15%	-18%	-20%	-21%	-12%	-22%
Heavy-duty vehicles	-48%	-48%	-48%	-68%	6%	29%	-32%	7%
Total	**-13%**	**-13%**	**-22%**	**-34%**	**-20%**	**16%**	**-20%**	**-2%**

Ocean-Going Vessels

Overall energy consumption (in terms of kWh) by OGV emission sources in 2005, 2017, 2022, and 2023 are shown in Table 8.8. The kWh associated with the CAECS generators are included with the auxiliary engine kWh shown in the table. The main engine activity has decreased since 2005 mainly due to the Vessel Speed Reduction (VSR) program and fewer vessel calls. The auxiliary boiler activity increased compared to 2005 as there currently is no program or regulation to decrease the boiler activity or emissions. In 2023, there were seven calls that used a CAECS, or shore power equivalent system.

Table 8.8: OGV Energy Consumption Comparison by Emission Source, kWh

Year	All Emission Sources	Main Eng	Aux Eng	Boiler
2005	506,332,609	148,941,469	228,719,799	128,671,341
2017	393,369,320	92,415,272	155,536,103	145,417,945
2022	417,221,473	72,788,600	164,944,546	179,488,326
2023	373,191,767	66,253,367	141,143,376	165,795,024
CAAP Progress	**-26%**	**-56%**	**-38%**	**29%**
2023 vs 2017	**-5%**	**-28%**	**-9%**	**14%**
Previous Year	**-11%**	**-9%**	**-14%**	**-8%**

Table 8.9 summarizes the distribution of main engine IMO NO_x standards tier calls (Tier). NO_x emissions for Tier III vessels are 75% cleaner than Tier II vessels when operating at or above 25% main engine load. The increase (11%) in Tier III vessels continued in 2023.

Table 8.9: OGV Main Engine Calls by IMO NO_x Tiers

Year	IMO Tier 0	IMO Tier I	IMO Tier II	IMO Tier III	No Tier
2005	54%	42%	0%	0%	4%
2017	15%	60%	24%	0%	1%
2022	8%	45%	38%	5%	3%
2023	11%	39%	38%	11%	2%

The No Tier column represents vessels that do not have diesel engines, such as steamships or vessels with gas turbines. Tier I refers to calls by vessels meeting or exceeding Tier I standards (vessels constructed from 2000-2010), Tier II refers to calls by vessels meeting or exceeding Tier II standards (vessels constructed from 2011-2015), and Tier III refers to calls by vessels meeting or exceeding the Tier III standards, which are in effect in the North American ECA for vessels constructed on or after January 1, 2016.

The various emission reduction strategies for ocean-going vessels that were in effect in 2023, 2022, 2017, and 2005 are listed in Table 8.10. The percentage of vessels utilizing shore power is slightly higher in 2023 than the previous year.

Table 8.10: OGV Emission Reduction Strategies

Year	Shore Power	VSR 20 nm	VSR 40 nm	ESI	EIAPP Main Eng	EIAPP Aux Eng
2005	0%	68%	0%	0%	0%	0%
2017	39%	97%	91%	0%	0%	0%
2022	35%	93%	88%	43%	58%	57%
2023	40%	93%	89%	42%	57%	56%

The following OGV emission reductions strategies are listed:

- Shore Power refers to vessel calls using shore power at berth, instead of running their diesel-powered auxiliary engines.

- VSR refers to the vessels reducing their transit speed to 12 knots or lower within 20 and 40 nm of Point Fermin as part of the Port's Green Flag Program.

- ESI refers to the number of vessel calls that participated in the ESI program which evaluates the environmental performance of a vessel. ESI is a component of the Green Ship incentive program which encourages cleaner vessels to come to the Port.

- Engine International Air Pollution Prevention (EIAPP) certificates refer to the number of vessel calls using ship-specific NO_x emission factors for main and auxiliary engines, where vessel specific EIAPP certificates with actual NO_x rating were available through the ESI program or the VBP.

Harbor Craft

As shown in Table 8.11, compared to prior years, the harbor craft vessel and engine count (including ATBs and barges) operating at the Port in 2023 increased significantly due to the addition of tank and other barges. There was a 9% increase in the overall energy consumption (kWh) from 2005 to 2023. Compared to previous year, the energy consumption in 2023 is 8% higher.

Table 8.11: Harbor Craft Count and Energy Consumption Comparison

Year	Vessel Count	Engine Count	Total kWh
2005	92	301	48,556,571
2017	93	345	49,964,145
2022	92	382	49,065,454
2023	158	517	53,027,453
CAAP Progress	**72%**	**72%**	**9%**
2023 vs 2017	**70%**	**50%**	**6%**
Previous Year	**72%**	**35%**	**8%**

Table 8.12 summarizes the distribution of engines based on EPA's engine standards. Since 2005, the percentage of Tier 2, Tier 3, and Tier 4 engines increased significantly due to the introduction of newer vessels with newer engines into the fleet and replacements of existing higher-emitting engines with cleaner engines. The reason for the high count of unknown engines in 2023 is due to the addition of barges to the inventory to be consistent with CARB CHC Regulation. Over the next few years, the Port will strive to reduce the number of unknown engines for the barges that call the Port.

Table 8.12: Harbor Craft Engine Tier Change, %

	2005 Engine Count	2017 Engine Count	2022 Engine Count	2023 Engine Count
Unknown	102	15	18	118
Tier 0	86	12	34	21
Tier 1	102	26	16	16
Tier 2	11	174	116	139
Tier 3	0	118	172	193
Tier 4	0	0	26	30
Total	**301**	**345**	**382**	**517**

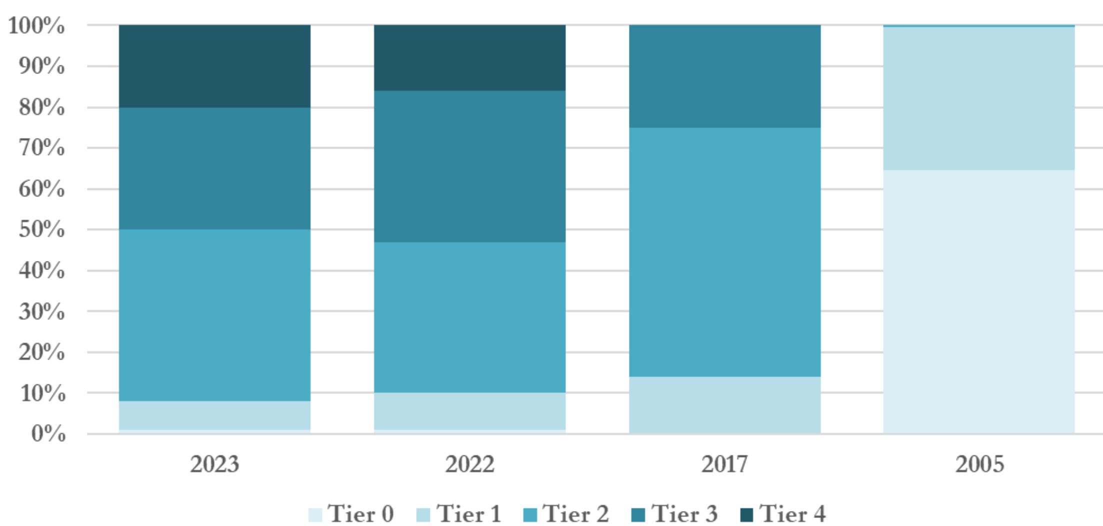
Table 8.13 compares the harbor craft energy consumption (kWh) by engine tier. In 2023, 92% of energy consumed by harbor craft is from Tier 2 to Tier 4 engines.

Table 8.13: Engine Energy and Activity Change, kWh and %

Engine Tier	2005 kWh	2005 % of Total	2017 kWh	2017 % of Total	2022 kWh	2022 % of Total	2023 kWh	2023 % of Total
Tier 0	31,357,757	64.6%	163,304	0.3%	449,822	0.9%	421,791	0.8%
Tier 1	16,937,667	34.9%	7,178,097	14.4%	4,226,339	8.6%	4,007,991	7.3%
Tier 2	261,146	0.5%	30,263,432	60.6%	18,001,474	36.7%	21,242,358	41.8%
Tier 3	0	0.0%	12,359,312	24.7%	18,352,782	37.4%	16,618,665	30.5%
Tier 4	0	0.0%	0	0.0%	8,035,037	16.4%	10,736,647	19.7%
Total	**48,556,571**	**100%**	**49,964,145**	**100%**	**49,065,454**	**100%**	**53,027,453**	**100%**

Figure 8.3 shows the equipment energy consumption (kWh) transition for harbor vessels by diesel engine tier. It shows that in 2005, most of the energy consumed was by older engines (Tier 0-1). In 2017, the majority of the energy consumed was by Tier 2 engines followed by Tier 3. In 2022 and 2023, the number of Tier 4 engines increased and over 90% of the energy consumed is for Tier 2 to Tier 4 engines.

Figure 8.3: Harbor Craft Energy Consumption Distribution by Engine Tier, %



Cargo Handling Equipment

In 2023, there is 23% more equipment with 6% less energy consumption for fossil-fueled equipment than in 2005. These increases are needed to accommodate the 20% increase in TEU throughput and operational changes at the Port over the years. The largest increase in equipment count is for electric equipment. In 2023, there are 301 pieces of electric equipment operating at the Port or 19% of the total CHE.

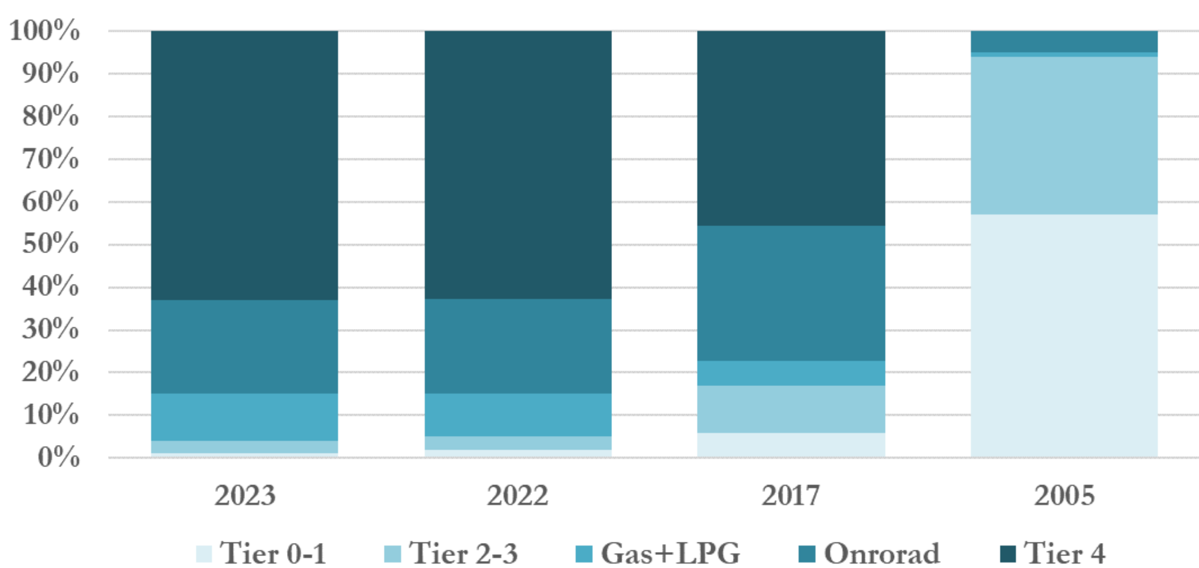
Table 8.14 shows the energy consumption (in kWh) from fossil-fueled equipment, but the equipment count includes electric equipment. Compared to the prior years (2005, 2017 and 2022), there is a decrease in energy consumption from fossil-fueled equipment due to the addition of electric equipment to container terminal operations.

Table 8.14: CHE Count and Energy Consumption Comparison

Year	Equipment Count	Activity (kWh)
2005	1,259	134,618,521
2017	1,408	148,688,094
2022	1,507	171,040,627
2023	1,551	126,854,999
CAAP Progress	**23%**	**-6%**
2023 vs 2017	**10%**	**-15%**
Previous Year	**3%**	**-26%**

Figure 8.4 shows the equipment energy consumption (kWh) transition for fossil fueled equipment by diesel engine tier and by non-diesel fueled equipment. It shows that in 2005, most of the equipment were older (Tier 0-2). From 2017 to 2023, the number of Tier 4 and newer on-road equipment increased. In 2023, 85% of the energy consumed for fossil fueled equipment is for equipment with Tier 4 and on-road engines, followed by 11% gasoline and propane engines. The older Tier 0-3 equipment consumes 4% of the energy.

Figure 8.4: CHE Energy Consumption Distribution by Engine Tier, %



Tables 8.15 and 8.16 compare the CHE emission reduction technologies and fuels used in 2023 with those used in 2005 and 2022. Compared to 2005, there is a significant increase in the number of CHE equipped with cleaner on-road engines. All of the DPF retrofits installed are on equipment at Tier 3 or lower level, thus the count is lower for 2023. Half of the diesel-powered equipment uses renewable diesel.

Table 8.15: CHE Diesel Powered Equipment Emissions Control Matrix

Equipment	Hybrid	On-Road Engines	DPF Retrofit	ULSD Fuel	Renewable Diesel	Total Diesel Equipment	% of Diesel Powered Equipment: Hybrid	On-Road Engines	DPF Retrofit	ULSD Fuel	Renewable Diesel
2023											
Forklift	0	0	18	78	34	112	0%	0%	16%	70%	30%
RTG crane	30	0	5	28	31	59	51%	0%	8%	47%	53%
Side handler	0	0	0	2	0	2	0%	0%	0%	100%	0%
Top handler	0	0	23	79	121	200	0%	0%	12%	40%	61%
Yard tractor	0	245	0	246	297	543	0%	45%	0%	45%	55%
Other	0	4	2	47	24	71	0%	6%	3%	66%	34%
Total	**30**	**249**	**48**	**480**	**507**	**987**	**3%**	**25%**	**5%**	**49%**	**51%**
2022											
Forklift	0	0	14	75	33	108	0%	0%	13%	69%	31%
RTG crane	29	0	12	34	30	64	45%	0%	19%	53%	47%
Side handler	0	0	3	2	3	5	0%	0%	60%	40%	60%
Top handler	0	0	33	79	122	201	0%	0%	16%	39%	61%
Yard tractor	0	245	0	211	298	509	0%	48%	0%	41%	59%
Other	0	4	2	53	24	77	0%	5%	3%	69%	31%
Total	**29**	**249**	**64**	**454**	**510**	**964**	**3%**	**26%**	**7%**	**47%**	**53%**
2017											
Forklift	0	0	50	104	0	104	0%	0%	48%	100%	0%
RTG crane	7	0	30	67	0	67	10%	0%	45%	100%	0%
Side handler	0	0	12	13	0	13	0%	0%	92%	100%	0%
Top handler	0	0	70	195	0	195	0%	0%	36%	100%	0%
Yard tractor	0	400	0	564	0	564	0%	71%	0%	100%	0%
Other	0	4	5	53	0	53	0%	8%	9%	100%	0%
Total	**7**	**404**	**167**	**996**	**0**	**996**	**1%**	**41%**	**17%**	**100%**	**0%**
2005											
Forklift	0	0	0	0	0	169	0%	0%	0%	0%	0%
RTG crane	0	0	0	0	0	85	0%	0%	0%	0%	0%
Side handler	0	0	0	0	0	43	0%	0%	0%	0%	0%
Top handler	0	0	0	0	0	113	0%	0%	0%	0%	0%
Yard tractor	0	53	0	0	0	641	0%	8%	0%	0%	0%
Other	0	0	0	0	0	68	0%	0%	0%	0%	0%
Total	**0**	**53**	**0**	**0**	**0**	**1,119**	**0%**	**5%**	**0%**	**0%**	**0%**

Table 8.16: CHE Engine Power Matrix

Equipment	Electric	Propane	Gasoline	Diesel	Total
2023					
AGV	100	0	0	0	100
Forklift	17	84	27	112	240
Wharf crane	82	0	0	0	82
RTG crane	9	0	0	59	68
ASC	69	0	0	0	69
Top handler	0	0	0	200	200
Yard tractor	1	0	134	543	678
Other	23	16	2	73	114
Total	**301**	**100**	**163**	**987**	**1,551**
	19%	**6%**	**11%**	**64%**	
2022					
AGV	102	0	0	0	102
Forklift	10	80	25	108	223
Wharf crane	75	0	0	0	75
RTG crane	9	0	0	64	73
ASC	69	0	0	0	69
Top handler	2	0	0	201	203
Yard tractor	1	0	136	509	646
Other	18	14	2	82	116
Total	**286**	**94**	**163**	**964**	**1,507**
	19%	**6%**	**11%**	**64%**	
2017					
AGV	56	0	0	0	56
Forklift	9	109	24	104	246
Wharf crane	64	0	0	0	64
RTG crane	0	0	0	67	67
ASC	32	0	0	0	32
Top handler	0	0	0	195	195
Yard tractor	0	7	80	564	651
Other	17	12	2	66	97
Total	**178**	**128**	**106**	**996**	**1,408**
	13%	**9%**	**7.5%**	**71%**	
2005					
AGV	0	0	0	0	0
Forklift	2	122	1	169	294
Wharf crane	na	0	0	0	0
RTG crane	0	0	0	85	85
ASC	0	0	0	0	0
Top handler	0	0	0	113	113
Yard tractor	0	0	0	641	641
Other	3	11	1	111	126
Total	**5**	**133**	**2**	**1,119**	**1,259**
	0.4%	**11%**	**0.2%**	**89%**	

Table 8.17 shows a comparison of CHE counts by equipment type. Electric equipment accounts for 19% of the total equipment at the Port in 2023.

Table 8.17: CHE Equipment Count

Equipment	2005	2017	2022	2023
Forklift	295	237	213	223
RTG crane	85	67	64	59
Side handler	43	13	5	2
Top handler	113	195	201	200
Yard tractor	641	651	646	677
Sweeper	15	12	20	20
Electric	na	178	286	301
Other	67	55	72	69
Total	**1,259**	**1,408**	**1,507**	**1,551**

Table 8.18 shows the electric equipment count for 2023, previous year and 2005. The count of electric ship to shore cranes was not included in the 2005 EI.

Table 8.18: CHE Count of Electric Equipment

Equipment	2005 Electric	2017 Electric	2022 Electric	2023 Electric
AGV	0	56	102	100
ASC	0	32	69	69
Cone vehicle	0	3	3	8
Crane	0	4	7	7
Electric pallet jack	2	2	0	0
Forklift	3	9	10	17
Man Lift	0	1	1	1
RTG crane	0	0	9	9
Ship to shore crane	na	64	75	82
Sweeper	0	1	2	2
Top handler	0	0	2	0
Truck	0	6	5	5
Yard tractor	0	0	1	1
Total	**5**	**178**	**286**	**301**

Locomotives

Table 8.19 shows the various throughput comparisons for rail transportation in 2005, 2017, 2022 and 2023. The total port throughput between 2005 and 2023 was higher by 20% in 2023. The on-dock rail throughput was 41% higher in 2023 than in 2005. The on-dock rail percent of total throughput increased from 16% to 19% between 2005 and 2023. Compared to the previous year, TEU cargo throughput and on-dock rail are lower in 2023.

Table 8.19: Container Throughput Comparison, TEU and %

	2005	2017	2022	2023	2005-2023 Change	2017-2023 Change	2022-2023 Change
Total Port Throughput	6,709,818	7,544,507	9,133,657	8,018,668	20%	6%	-12%
Total On-Dock Rail*	1,094,765	1,795,585	1,632,803	1,544,792	41%	-14%	-5%
% On-Dock	16%	24%	18%	19%			

*Based on average of 1.8 TEUs per container

Emissions comparison to the previous year for the locomotive source category are affected by the following factors:

- Lower activity in 2023 as compared to 2022 resulted in lower CO_2 emissions
- Slightly older line haul locomotives in South Coast AQMD per the CARB MOU fleet mix resulted in increased PM and NO_x emissions
- Use of renewable diesel by switching locomotives for the first time in 2023 resulted in slightly lower switching locomotive emissions
- Higher percentage of on-dock rail in 2023 than previous year, despite the lower throughput.

Heavy-Duty Vehicles

Emissions from the HDV source category continue to be far lower than in 2005 due largely to the following factors affecting the overall age of the truck fleet.

- Newer fleet of trucks due to the CTP[17] and CARB Advanced Clean Fleets Regulation[18]. As of 2023, trucks accessing the ports must be model year 2010 or newer per the CARB Regulation. As part of CTP, new trucks entering service at the Port must be model year 2014 or newer. As of 2023, 86% of calls were made by trucks of model year 2014 and newer, reflecting the removal of pre-2010 trucks from service and their replacement with newer trucks.
- The terminals optimized their gate systems and they use radio frequency identification (RFID) readers to identify trucks complying with the CTP provisions, which helped reduce idling time.
- Terminal automation installed by one terminal reduces wait times and limits turn times compared with traditional terminal operations.

The CTP and engine emission standards are responsible for most of the reductions, including the particulate and NO_x decreases, while sulfur fuel standards, specifically the introduction of ultra-low sulfur diesel fuel (ULSD), are responsible for the SO_x reduction.

Table 8.20 shows total port-wide estimated on-terminal idling times reported in 2005, 2017, 2022 and 2023. The 2023 port-wide idling time is based on an improved source of data regarding the time spent by trucks while on terminal (turn time), which relates to time that may not solely be time spent idling. Total idling decreased 26% as compared to the previous year and 4% since 2005. Compared to 2017, idling increased 54% and may be due in part to the increase in TEU throughput, which resulted in more truck trips.

Table 8.20: HDV Total Idling Time Comparison, hours and %

EI Year	Total Idling Time (hours)
2005	3,854,273
2017	2,400,882
2022	4,977,545
2023	3,699,074
CAAP Progress	**-4%**
2023 vs 2017	**54%**
Previous Year	**-26%**

[17] *https://polb.com/environment/clean-trucks/#program-details*
[18] *https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-detailed-drayage-truck-requirements*

Table 8.21 compares the vehicle miles traveled by heavy-duty trucks in 2005, 2017, 2022 and 2023. Reported on-terminal VMT in 2023 was higher than in 2005 and 2017 because of increased throughput and because several terminals re-evaluated their operations and provided higher estimates of average on-terminal driving distances.

Table 8.21: HDV Vehicle Miles Traveled Comparison, miles and %

Activity Location	2005 VMT	2017 VMT	2022 VMT	2023 VMT
On-Terminal	2,866,476	2,601,850	5,213,355	4,077,662
On-Road	213,716,895	166,952,922	223,425,938	186,206,260
	216,583,371	**169,554,772**	**228,639,293**	**190,283,922**
2023 Percent Change				
On-Terminal	42%	57%	-22%	
On-Road	-13%	12%	-17%	
Total	**-12%**	**12%**	**-17%**	

Table 8.22 presents the call-weighted age of the truck fleet. The average age of the trucks visiting the Port is six years in 2023. The share of mileage driven by 2014 and newer model year trucks increased from 16% in 2017 and 64% in 2022 to 86% in 2023, significantly reducing emissions of NO_x and other pollutants.

Table 8.22: Call-Weighted HDV Age

Calendar Year	Call-Weighted Average Age (years)	Truck calls 2014 & newer (%)
2005	11	0%
2017	5	16%
2022	7	64%
2023	6	86%

Figure 8.3 illustrates the distribution of truck calls by model year comparison showing how the 2014 and newer trucks have increased since 2017.

Figure 8.3: Distribution of Truck Calls by Model Year, %

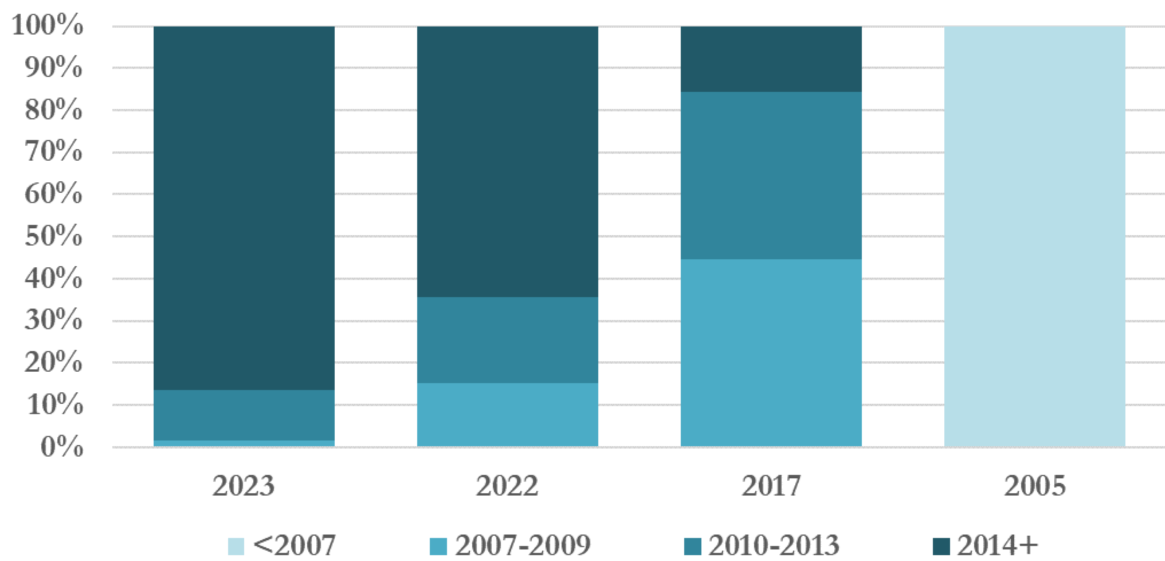
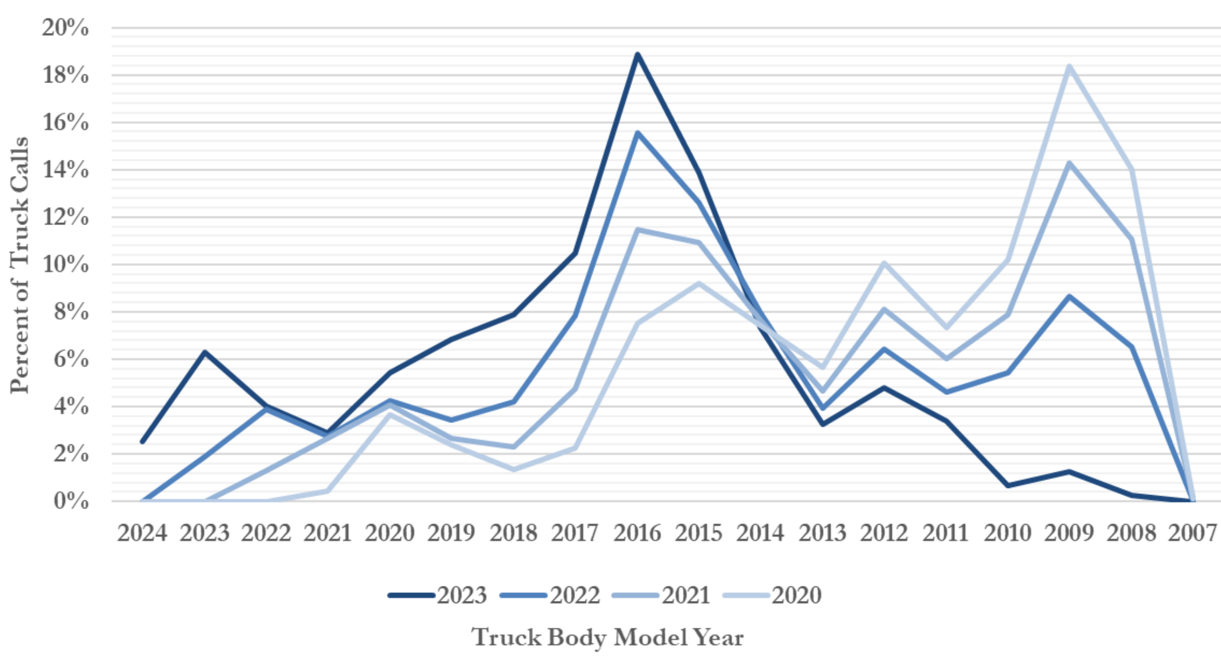


Figure 8.4 illustrates the HDV model year distribution for calendar years 2020 to 2023. It shows model year 2016 trucks is the dominant model year in 2023.

Figure 8.4: HDV Model Year Distribution



SECTION 9 METRICS

To measure the effectiveness of emissions reduction strategies and progress towards the San Pedro Bay Emission Reduction Standards, the Port has established metrics to track emissions per unit of work by source category. Since port operations are varied with a mix of container and non-container cargo, the metrics listed in this section are based on TEU throughput and metric tons of cargo moved through the Port. Table 9.1 compares the amount of throughput in 2023, previous year, 2017 and 2005 in TEU.

Table 9.1: Container and Cargo Throughput and Change, %

Year	Throughput Container (TEU)
2005	6,709,818
2017	7,544,507
2022	9,133,657
2023	8,018,668
CAAP Progress	**20%**
2023 vs 2017	**6%**
Previous Year	**-12%**

Tables 9.2 shows the port-wide tons of emissions per 10,000 TEU in 2005, 2017, 2022 and 2023. The decrease in emissions per 10,000 TEU of cargo indicates improvement in efficiency.

Table 9.2: Emission Efficiency Metric Comparison, annual tons per 10,000 TEU

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2005	1.72	1.45	1.32	22.48	10.35	4.10	1.10	1,455
2017	0.17	0.15	0.12	8.86	0.28	1.70	0.37	1,095
2022	0.14	0.13	0.09	6.06	0.21	2.18	0.29	1,059
2023	0.14	0.12	0.09	5.48	0.21	1.86	0.28	1,013
CAAP Progress	**-92%**	**-91%**	**-93%**	**-76%**	**-98%**	**-55%**	**-75%**	**-30%**
2023 vs 2017	**-18%**	**-18%**	**-27%**	**-38%**	**-25%**	**9%**	**-25%**	**-7%**
Previous Year	**-0.7%**	**-0.7%**	**-3%**	**-10%**	**1%**	**-15%**	**-3%**	**-4%**

SECTION 10 CAAP PROGRESS

The Port's annual emissions inventories serve as the primary tool to track progress towards achieving the Clean Air Action Plan's San Pedro Bay Standards. These standards consist of the following emission reduction goals:

- Mass Emissions Reduction Standards:
  - By 2014, reduce emissions by 72% for DPM, 22% for NO_x, and 93% for SO_x from 2005 levels
  - By 2023, reduce emissions by 77% for DPM, 59% for NO_x, and 93% for SO_x from 2005 levels

The reduction of goods movement-related emissions in 2023 compared to 2005 can be attributed to a number of initiatives, including emissions reduction programs identified in the CAAP and implemented by the Port, such as the Clean Trucks Program, Green Flag Vessel Speed Reduction Program, the Green Ship Incentive Program, as well as CARB regulations requiring the use of shore power for vessels at berth and the use of cleaner vessel fuels.

Economic forecasts indicate cargo volumes through the Port of Long Beach will increase in upcoming years, although cargo volumes in recent years have not kept pace with recent forecasts. While emission reductions are expected to continue in the future toward meeting the CAAP goals, the rapid rate of emission reductions in recent years may not continue as cargo volumes increase. However, continued implementation of the CAAP and regulatory programs will continue to provide emissions benefits from goods movement-related sources and may offset impacts from the projected growth in trade.

The mass emissions reduction standards are represented as a percentage reduction of emissions from 2005 levels. Table 10.1 summarizes the standardized estimates of emissions by source category for calendar years 2005 and 2023 using the 2023 methodology. In 2023, the Port met and exceeded the CAAP 2023 DPM, NO_x, and SO_x emission reduction standards.

Table 10.1: 2005-2023 Emissions in tons and Reductions in % Compared to CAAP San Pedro Bay Emissions Reduction Standards

Category	2005		2023
DPM (tons)			
Ocean-going vessels	569		38
Harbor craft	36		5
Cargo handling equipment	33		6
Locomotives	43		19
Heavy-duty vehicles	205		3
Total	**887**		**71**
Cumulative DPM Emissions Reduction Achieved in 2023			**92%**
CAAP San Pedro Bay DPM Emissions Reduction Standards		**2023**	**77%**
NO_x (tons)			
Ocean-going vessels	6,676		3,120
Harbor craft	699		296
Cargo handling equipment	1,165		159
Locomotives	1,273		503
Heavy-duty vehicles	5,273		316
Total	**15,085**		**4,394**
Cumulative NO_x Emissions Reduction Achieved in 2023			**71%**
CAAP San Pedro Bay NO_x Emissions Reduction Standards		**2023**	**59%**
SO_x (tons)			
Ocean-going vessels	6,815		165
Harbor craft	3		0
Cargo handling equipment	11		1
Locomotives	76		0
Heavy-duty vehicles	37		3
Total	**6,943**		**170**
Cumulative SO_x Emissions Reduction Achieved in 2023			**98%**
CAAP San Pedro Bay SO_x Emissions Reduction Standards		**2023**	**93%**

APPENDIX A: REGULATORY AND SAN PEDRO BAY PORTS CLEAN AIR ACTION PLAN (CAAP) MEASURES

Regulatory Programs by Source Category

The following tables summarize current regulatory programs and CAAP measures by major source category that influenced 2021 emissions from goods movement-related operations at the Port and/or will impact emissions in the near future.

Table A.1: OGV Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Implementation Year	Impact
International Maritime Organization (IMO)	**NO_x Emission Standard for Marine Engines** *www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-(NOx)-%E2%80%93-Regulation-13.aspx*	NO_x	2011 – Tier 2 2016 – Tier 3 for ECA only	Sets NO_x emission standard for auxiliary and propulsion engines over 130 kW output power on newly built vessels
IMO	**Low Sulfur Fuel Requirements for Marine Engines** *www.imo.org/en/OurWork/Environment/Pages/Sulphur-oxides-(SOx)-%E2%80%93-Regulation-14.aspx*	DPM PM SO_x	2012 ECA – 1% Sulfur 2015 ECA – 0.1% Sulfur	Significantly reduces emissions due to low sulfur content in fuel by creating Emissions Control Area (ECA)
IMO	**Energy Efficiency Design Index (EEDI) and Energy Efficiency Existing Ship Index (EEXI) – MEPC 333 (76)** *www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Technical-and-Operational-Measures.aspx*	CO_2 and other pollutants	2013 – EEDI 2023 - EEXI	Increases the design efficiencies of ships relating to energy and emissions
IMO	**2023 IMO Strategy on reduction of GHG emissions from ships – MEPC 377 (80)** *wwwcdn.imo.org/localresources/en/MediaCentre/PressBriefings/Documents/Clean%20version%20of%20Annex%201.pdf*	CO_2	2050 – 100%	Phase out GHG completely by 2050 from 2008 level. Intermediate GHG reduction checkpoints in 2030 and 2040.
IMO	**Carbon Intensity Indicator (CII) - MEPC 328 (76)** *www.imo.org/en/MediaCentre/PressBriefings/pages/CII-and-EEXI-entry-into-force.aspx*	CO_2	2030 – 40% reduction from 2008 baseline	Increases the transport work efficiency of ships relating to emissions; reduce the carbon intensity of all ships

Table A.1 (continued): OGV Emission Regulations, Standards and Policies

Agency	Regulation, Standard, or Policy	Targeted Pollutants	Implementation Year	Impact
EPA	**Emission Standards for Marine Diesel Engines above 30 Liters per Cylinder (Category 3 Engines);** *www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression*	DPM PM NO_x SO_x	2011 – Tier 2 2016 – Tier 3	Auxiliary and propulsion on US-Flagged new built vessels; Use of low sulfur fuel
CARB	**Regulation to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels While At-Berth at a California Port** *ww2.arb.ca.gov/our-work/programs/ocean-going-vessels-berth-regulation*	All	2014 – 50% 2017 –70% 2020 – 80%	Vessels must use Shore power (or equivalent) requirement to reduce at-berth emissions. Compliance levels based on fleet percentage visiting the port.
CARB	**New 2020 At-Berth Regulation** *ww2.arb.ca.gov/our-work/programs/ocean-going-vessels-berth-regulation*	All	2023 – 100% container, reefer, and cruise 2025 – Ro-Ro and tankers	All container, reefer, cruise, Ro-Ro, and tanker vessel and regulated terminal operator will have an obligation to meet the requirements
CARB	**Ocean-going Ship Onboard Incineration** *www.arb.ca.gov/ports/shipincin/shipincin.htm*	DPM PM HC	2007	Vessel operators cannot incinerate within 3 nm of the California coast
SPBP CAAP	**CAAP Measure – OGV 1** **Vessel Speed Reduction (VSR) Program** *www.cleanairactionplan.org/strategies/ships/*	All	2008	Vessel operators within 20 nm and 40 nm of Point Fermin
SPBP CAAP	**CAAP Measure – OGV 2** **Reduction of At-Berth OGV Emissions** *www.cleanairactionplan.org/strategies/ships/*	All	2014	Shore power requirements. Vessel operators and terminals
SPBP CAAP	**CAAP Measure – OGV 5 and 6** **Cleaner OGV Engines and OGV Engine Emissions Reduction Technology Improvements** *www.cleanairactionplan.org/strategies/ships/*	DPM PM NO_x	2012 2021- added ESI and increased incentive	Vessel operators who choose to participate in technology demonstrations and/or Green Ship Incentive Program

Table A.2: Harbor Craft Emission Regulations, Standards and Policies

Agency	Regulation, Standard, or Policy	Targeted Pollutants	Implementation Year	Impact
EPA	**Emission Standards for Harbor Craft Engines** *www.epa.gov/ regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression*	All	2009 – Tier 3 2014 – Tier 4 for 800 hp or greater	Commercial marine diesel engines with displacement less than 30 liters per cylinder
CARB	**Low Sulfur Fuel Requirement for Harbor Craft**	DPM PM NO_x SO_x	2006 – 15 ppm	Use of low sulfur diesel fuel in commercial harbor craft operating in SCAQMD
CARB	**Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft**	DPM PM NO_x	2009 to 2020 - Depending on engine model year	This regulation was fully implemented by 2022
CARB	**Amendments to the Commercial Harbor Craft Regulation** *ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft*	All	2023 to 2032 – depending on engine MY and vessel type	New requirements for harbor craft in a phased approach. Use of renewable diesel from January 1, 2023, on
SPBP CAAP	**CAAP Measure – HC 1 Performance Standards for Harbor Craft** *www.cleanairactionplan.org/strategies/harbor-craft/*	All	2009 to 2020 - Depending on engine model year	Modernization of harbor craft operating in San Pedro Bay Ports

Table A.3: Cargo Handling Equipment Emission Regulations, Standards and Policies

Agency	Regulation, Standard, or Policy	Targeted Pollutants	Implementation Year	Impact
EPA	**Emission Standards for Non-Road Diesel Powered Equipment** *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-nonroad-vehicles-and-engines*	All	2008-2015	All non-road (also known as off-road) equipment
CARB	**Regulation for Cargo Handling Equipment Operating at Ports and Intermodal Railyards**	All	2007-2017; Opacity test compliance from 2016-on	Regulation fully implemented
CARB	**New Emission Standards, Test Procedures, for Large Spark Ignition (LSI) Engine Forklifts and Other Industrial Equipment** *ww2.arb.ca.gov/large-spark-ignition-engine-regulatory-and-certification-documents*	All	2007 – Phase 1 2010 – Phase 2	Emission standards for large spark-ignition engines 25 hp or greater; amended in 2012
CARB	**Fleet Requirements for Large Spark Ignition Engines** *ww2.arb.ca.gov/our-work/programs/large-spark-ignition-lsi-engine-fleet-requirements-regulation*	All	2009-2013 Records maintained through 2023	More stringent emissions requirements for fleets of large spark ignition engine equipment fleets
SPBP CAAP	**CAAP Measure – CHE1 Performance Standards for CHE** *www.cleanairactionplan.org/strategies/cargo-handling-equipment/*	All	2007-2014	Turnover to Tier 4 cargo handling equipment per lease renewal agreement
SPBP CAAP	**CAAP Measure – Transition to Cleaner Equipment** *www.cleanairactionplan.org/about-the-plan/*	All	2020-2030	Turnover to zero emissions CHE, if feasible, or near zero emissions or cleanest available if ZE/NZE not yest feasible

Table A.4: Railroad Locomotives Emission Regulations, Standards and Policies

Agency	Regulation, Standard, or Policy	Targeted Pollutants	Implementation Year	Impact
EPA	**Emission Standards for New and Remanufactured Locomotives and Locomotive Engines- Latest Regulation** *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-locomotives*	DPM NO_x	2011 through 2013 – Tier 3 2015 – Tier 4	All new and remanufactured locomotive engines
EPA	**Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel** *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-nonroad-vehicles-and-engines*	SOx PM	2010	All locomotive engines
CARB	**Low Sulfur Fuel Requirement for Intrastate Locomotives**	SO_x NO_x PM	2007	Intrastate locomotives, mainly switchers
CARB	**Statewide 1998 and 2005 Memorandum of Understanding (MOUs)** *ww2.arb.ca.gov/resources/documents/2005-statewide-railyard-agreement*	NO_x	2010	UP and BNSF locomotives
CARB	**New In-Use Locomotive Regulation** *ww2.arb.ca.gov/our-work/programs/reducing-rail-emissions-california/locomotive-fact-sheets*	All	2024	All locomotive engines in CA
SPBP CAAP	**CAAP Measure – RL1 Pacific Harbor Line (PHL) Rail Switch Engine Modernization** *www.cleanairactionplan.org/strategies/trains/*	PM	2010	PHL switcher engines
SPBP CAAP	**CAAP Measure – RL2 Class 1 Line-haul and Switcher Fleet Modernization** *www.cleanairactionplan.org/strategies/trains/*	All	2023 – Tier 3	Class 1 locomotives at ports
SPBP CAAP	**CAAP Measure – RL3 New and Redeveloped Near-Dock Rail Yards** *www.cleanairactionplan.org/strategies/trains/*	All	2020 – Tier 4	New near-dock rail yards

Table A.5: Heavy-Duty Vehicles Emission Regulations, Standards and Policies

Agency	Regulation, Standard, or Policy	Targeted Pollutants	Implementation Year	Impact
CARB/EPA	**Emission Standards for New 2007+ On-Road Heavy-Duty Vehicles** *www.arb.ca.gov/road-heavy-duty-regulations-certification-programs*	NO_x PM	2007 2010	All new on-road diesel heavy-duty vehicles
CARB	**Heavy-Duty Vehicle On-Board Diagnostics (OBD and OBDII) Requirement** *www.arb.ca.gov/our-work/programs/obd*	NOx PM	2010+	All new on-road heavy-duty vehicles
CARB	**Ultra-Low Sulfur Diesel Fuel Requirement** *www.arb.ca.gov/regact/ulsd2003/ulsd2003.htm*	All	2006 - ULSD	All on-road heavy-duty vehicles
CARB	**Drayage and Truck and Bus Regulation** (amended in 2011 and 2014) *www.arb.ca.gov/msprog/onroad/porttruck/drayagevtruckbus.pdf*	All	Phase in started in 2009	All drayage trucks operating at California ports
CARB	**Low NOx Software Upgrade Program** *www.arb.ca.gov/road-heavy-duty-regulations-certification-programs*	NO_x	Starting 2005	1993 to 1998 on-road heavy-duty vehicles that operate in California
CARB	**Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation** *www.arb.ca.gov/road-heavy-duty-regulations-certification-programs*	CO_2	Phase 1 starting in 2012	Heavy-duty tractors that pull 53-foot+ trailers in CA

Table A.5 (continued): Heavy-Duty Vehicles Emission Regulations, Standards and Policies

CARB	**Advanced Clean Fleets (ACF) Regulation** *https://ww2.arb.ca.gov/our-work/programs/truckstop-resources/zev-truckstop/regulations*	All	Starting on Jan 2024, new trucks registered to drayage fleets in CARB online systems must be ZEV. All must be ZEV by 2035	All medium and heavy-duty trucks. All drayage truck registration on CARB's online system is required by December 31, 2023
SPBP CAAP	**CAAP Measure – HDV1 Performance Standards for On-Road Heavy-Duty Vehicles; Clean Truck Program** *https://cleanairactionplan.org/strategies/trucks/*	All	Phase-in starting in 2008	On-road heavy-duty vehicles that operate at POLB must have 2007 or newer engines by 2012
SPBP CAAP	**CAAP Measure –Clean Truck Fund Rate** *https://cleanairactionplan.org/strategies/trucks/*	NO_x	2022	Rate collection for trucks; low NO_x and ZE trucks exempt

APPENDIX B:
CARGO HANDLING EQUIPMENT DATA

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
AGV	Gottwald	CT 70 BN	Electric					2789	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3331	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3177	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3172	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3196	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3177	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2912	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3046	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3028	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3064	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3206	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3133	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3092	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3177	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2382	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3170	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3066	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2852	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3037	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3162	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3318	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3150	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2879	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3037	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2817	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3183	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3370	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3312	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2917	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3101	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3041	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2947	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3050	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2958	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3184	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2514	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3258	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2120	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3231	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3050	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2717	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3025	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3145	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2626	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3123	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2951	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3237	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3164	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3317	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3116	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3210	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3241	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3392	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3025	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3117	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3213	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2968	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2929	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3170	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3148	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3101	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3360	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3410	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3050	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					754	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3425	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3058	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2769	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3239	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3382	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3383	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3161	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3407	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2803	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3254	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3290	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2687	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3225	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3394	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3354	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3051	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2353	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3159	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2959	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1396	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3362	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3354	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3321	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3269	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2629	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3002	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3381	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3068	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1935	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2945	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3051	CHE Electric				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
AGV	Gottwald	CT 70 BN	Electric					3421	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2701	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3088	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3267	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2887	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3034	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3365	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2528	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					1387	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3380	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2992	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2474	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2817	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2955	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2805	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2350	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3083	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					267	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2854	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2869	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3105	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2388	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3071	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3068	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2654	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2772	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2761	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2891	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2676	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2892	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2680	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2794	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3331	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2379	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3141	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3011	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3421	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2915	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2785	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2772	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3323	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2881	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2943	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2796	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2672	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3462	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					1242	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2076	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2832	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3077	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3207	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2725	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3210	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3314	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3324	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3575	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3186	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3097	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3251	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3477	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3034	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3086	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2500	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3416	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3283	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3464	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3116	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3257	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3093	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2734	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2846	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2539	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2280	CHE Electric				
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	767	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	1156	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	1038	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	199	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	1410	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Electric					1297	CHE Electric				
Cone Vehicle	Motrec		Electric					428	CHE Electric				
Cone Vehicle	Motrec		Electric					1562	CHE Electric				
Cone Vehicle	Motrec	MX-700	Electric					806	CHE Electric				
Cone Vehicle	Motrec	MX-700	Electric					525	CHE Electric				
Cone Vehicle	Motrec	MX-700	Electric					492	CHE Electric				
Cone Vehicle	Motrec	MX-700	Electric					272	CHE Electric				
Cone Vehicle	Motrec	MX-700	Electric					30	CHE Electric				
Crane	Linkbelt	HTC86110	Diesel			2020	450	5	CHE Diesel				
Crane	Terex	RT555	Diesel	Cummins	QSB 6.7	2016	173	241	CHE Diesel				
Crane	Gottwald	330EG	Electric			2006	0	0	CHE Electric				
Crane	ZPMC		Electric					2440	CHE Electric				
Crane	ZPMC		Electric					1699	CHE Electric				
Crane	ZPMC		Electric					1796	CHE Electric				
Crane	ZPMC		Electric					2226	CHE Electric				
Crane	ZPMC		Electric					1728	CHE Electric				
Crane	ZPMC		Electric					263	CHE Electric				
Excavator	CAT	336F	Diesel			2016			CHE Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Hyster	H100FT	Diesel	Kubota	V3800	2021	73	658	CHE Diesel				
Forklift	Hyster	H210HD2	Diesel	Cummins	QSB4.5	2020	160	363	CHE Diesel				
Forklift	Linde	H50D	Diesel	VW	1.75L	2008		293	CHE Diesel				
Forklift	Linde	H50D	Diesel	VW	1.75L	2008		212	CHE Diesel				
Forklift	World	FD100	Diesel	Cummins	QSF3.8	2019	130	13	CHE Diesel				
Forklift	World	FD100	Diesel	Cummins	QSF3.8	2019	130	65	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	258	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	443	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	294	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	151	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	270	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	312	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	309	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	123	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	30	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	87	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	104	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	45	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	214	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	262	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	289	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	264	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	347	CHE Diesel				
Forklift	Wiggins	W360YXL	Diesel	Volvo	TAD570-72VE	2018	215	68	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	131	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	141	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	187	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	111	CHE Diesel				
Forklift	Taylor	X550M	Diesel	Cummins	QSL9	2018	250	164	CHE Diesel				
Forklift	Taylor	X550RC	Diesel	Cummins	QSB6.7	2018	225	187	CHE Diesel				
Forklift	Taylor	X550RC	Diesel	Cummins	QSB6.7	2019	225	156	CHE Diesel				
Forklift	Taylor	X550RC	Diesel	Cummins	QSB6.7	2019	225	151	CHE Diesel				
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2019	225	153	CHE Diesel				
Forklift	Taylor	X620RR	Diesel	Cummins	QSL9	2017	250	195	CHE Diesel				
Forklift	Taylor	36 T	Diesel		36 T	2016	250	234	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2017	160	2618	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2014	160	3822	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2014	160	3841	CHE Diesel				
Forklift	Hyster	H155FT	Diesel	Kubota	V3800	2017	106	3717	CHE Diesel				
Forklift	Hyster	H155XL2	Diesel	Kubota	V3800	2015	106	3236	CHE Diesel				
Forklift	Hyster	H210HD	Diesel	Kubota	V3800	2015	106	3391	CHE Diesel				
Forklift	Hyster	H155XL2	Diesel	Kubota	V3800	2014	93	4322	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2013	160	2209	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2013	160	1323	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2016	160	3109	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2017	160	3338	CHE Diesel				
Forklift	Hyster	H 210HD	Diesel	Cummins	QSB4.5	2016	160	3736	CHE Diesel				
Forklift	Linde	H80D	Diesel	Duetz	BF6M2012	2007	100	2747	CHE Diesel	1/1/2017			
Forklift	Taylor		Diesel	Cummins	QSB6.7	2008	200	200	CHE Diesel				
Forklift	Taylor		Diesel	Cummins	QSB6.7	2008	200	200	CHE Diesel				
Forklift	Hyster	XL2	Diesel	Hyster	7.5 T	1995	120	150	CHE Diesel				
Forklift	Caterpillar	DP160N2	Diesel	Perkins	4068/2200	2018	173	672	CHE Diesel				
Forklift	Wiggins	W110YM-12	Diesel	Volvo	TAD570VE	2019	215	960	CHE Diesel				
Forklift	Wiggins	W110YM-12	Diesel	Volvo	TAD570VE	2019	215	1040	CHE Diesel				
Forklift	Caterpillar	P33000D	Diesel	Caterpillar	6M60-TLA3T	2008	148	672	CHE Diesel				
Forklift	Caterpillar	P33000D	Diesel	Caterpillar	6M60-TLA3T	2008	148	672	CHE Diesel				
Forklift	Genie	GTH1056	Diesel	Deutz	TCD3.6L4	2015	121	691	CHE Diesel				
Forklift	Genie	GTH1056	Diesel	Deutz	TCD3.6L4	2015	121	745	CHE Diesel				
Forklift	Taylor	TXH-350L	Diesel	Volvo	TAD1371-75VE	2013	382	158	CHE Diesel				4/1/2022
Forklift	Taylor	TX360M	Diesel	Volvo	TAD1371-75VE	2014	382	123	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	223	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	177	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	230	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	324	CHE Diesel				4/1/2022
Forklift	Taylor		Diesel	Cummins	QSB6.7	2018	173	1550	CHE Diesel				4/1/2022
Forklift	Taylor		Diesel	Cummins	QSB6.7	2018	173	470	CHE Diesel				4/1/2022
Forklift	Clark		Diesel	Duetz	TD3.6L4	2018	74	371	CHE Diesel				4/1/2022
Forklift	Clark		Diesel	Duetz	TD3.6L4	2018	74	102	CHE Diesel				4/1/2022
Forklift	Taylor	X2805	Diesel			2019		117	CHE Diesel				4/1/2022
Forklift	Taylor	T300M	Diesel	Cummins	QSB5.9	2004	165	2029	CHE Diesel			6/1/2021	
Forklift	Taylor	T300M	Diesel	Cummins	QSB5.9	2004	165	1874	CHE Diesel	6/6/2014		6/1/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2015		932	CHE Diesel				6/1/2021
Forklift	Taylor	HX360L	Diesel	Cummins	QSB6.7	2018		1067	CHE Diesel				6/1/2021
Forklift	Taylor	HX360L	Diesel			2022		0	CHE Diesel				1/1/2023
Forklift	Taylor	HX360L	Diesel			2022		0	CHE Diesel				1/1/2023
Forklift	Taylor	X-300M	Diesel	Cummins	QSB6.7	2017	220	2174	CHE Diesel				6/1/2021
Forklift	Taylor	X-300M	Diesel	Cummins	QSB6.7	2017	220	2043	CHE Diesel				6/1/2021
Forklift	Taylor	X-300M	Diesel	Cummins	QSB6.7	2017	220	1553	CHE Diesel				6/1/2021
Forklift	Taylor	XL360L	Diesel			2018	173	1752	CHE Diesel				6/1/2021
Forklift	Taylor	T-300M	Diesel			2003	165	974	CHE Diesel	9/10/2014		6/1/2021	
Forklift	Taylor	TX300M	Diesel	Cummins		2014		798	CHE Diesel				6/1/2021
Forklift	Taylor	TX300M	Diesel	Cummins		2014		548	CHE Diesel				6/1/2021
Forklift	Taylor	TX300M	Diesel	Cummins		2014		976	CHE Diesel				6/1/2021
Forklift	Taylor	XL360L	Diesel	Cummins	QSB6.7	2018	173	135	CHE Diesel				6/1/2021
Forklift	JLG Skytrak	8042 T4F	Diesel	Cummins	QSF3.8	2015	110	196	CHE Diesel				4/1/2022
Forklift	JLG Skytrak	8042 T4F	Diesel	Cummins	QSF3.8	2015	110	27	CHE Diesel				4/1/2022
Forklift	Combi lift		Diesel			2014		69	CHE Diesel				4/1/2022
Forklift	Combi lift		Diesel			2021		44	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	292	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	378	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	372	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	460	CHE Diesel				4/1/2022
Forklift	Taylor		Diesel	Cummins	11.5 T	2002	173	1344	CHE Diesel	8/25/2014			
Forklift	Taylor	THD360L	Diesel	Cummins	11.5 T	2002	173	1126	CHE Diesel	8/25/2014			
Forklift	Taylor	TX360M	Diesel	Cummins	11.5 T	2007		1360	CHE Diesel	12/1/2011			
Forklift	Taylor	TH350L	Diesel	Cummins	11.5 T	2005	150	1353	CHE Diesel	8/25/2014			

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Taylor	TH350L	Diesel	Cummins	11.5 T	2005	150	500	CHE Diesel	8/25/2014			
Forklift	Clark	C50SD	Diesel	Deutz		2021	75	627	CHE Diesel				
Forklift	Clark	C50SD	Diesel	Deutz		2021	75	757	CHE Diesel				
Forklift	Taylor	T520M	Diesel	Cummins	25 ton	2008		520	CHE Diesel	12/1/2011			
Forklift	Clark	C50SD	Diesel	Deutz		2021	75	617	CHE Diesel				
Forklift	Clark	C50SD	Diesel	Deutz		2021	75	674	CHE Diesel				
Forklift	Taylor	X550M	Diesel	Isuzu	55000 lbs	2015	100	461	CHE Diesel				
Forklift	Doosan		Diesel	Yanmar		2019	43	150	CHE Diesel				
Forklift		4,500 lbs	Diesel			1996	50	10	CHE Diesel				
Forklift	Hyster		Diesel			1995	60	520	CHE Diesel				
Forklift	Hyster	H210HD	Diesel	Cummins	QSB6.7-155	2002	155	200	CHE Diesel	1/1/2014			
Forklift	Hyster	H210HD	Diesel	Perkins	1106C-E60TA	2003	155	225	CHE Diesel	1/1/2014			
Forklift	Hyster	H210HD	Diesel	Perkins	1106C-E60TA	2003	155	225	CHE Diesel	1/1/2014			
Forklift	Hyster	H210HD	Diesel	Perkins	1106C-E60TA	2003	155	225	CHE Diesel	1/1/2014			
Forklift	Hyster	H210HD	Diesel	Perkins	1106C-E60TA	2003	155	225	CHE Diesel	1/1/2013			
Forklift	Taylor	X280M	Diesel	Cummins	QSB4.5-C173 Tier 4	2020	173	530	CHE Diesel				
Forklift	Toyota	7FBEU15	Electric	Toyota	AC drive motor	1995	0	512	CHE Electric				
Forklift	Toyota		Electric	Taylor-Dunn	DC Drive Motor	1995	0	161	CHE Electric				
Forklift	Toyota	7FBEU20	Electric	Toyota	AC drive motor	1995	0	2	CHE Electric				
Forklift	Toyota	7FBEU15	Electric	Toyota	AC drive motor	2013	0	259	CHE Electric				
Forklift	Raymond		Electric	Raymond	AC drive motor	2012	0	293	CHE Electric				
Forklift	Toyota		Electric	Toyota		2020	0	292	CHE Electric				
Forklift	Toyota		Electric	Toyota			0	1360	CHE Electric				
Forklift			Electric			2021	0	29	CHE Electric				
Forklift			Electric			2021	0	48	CHE Electric				
Forklift			Electric			2021	0	45	CHE Electric				
Forklift	Hyster	N40ZRS2	Electric					33	CHE Electric				
Forklift	Hyster	N40ZRS2	Electric					4	CHE Electric				
Forklift	Hyster	FL-099	Electric					86	CHE Electric				
Forklift	Hyster	FL-100	Electric					43	CHE Electric				
Forklift	Hyster	J360XD	Electric					66	CHE Electric				
Forklift	Clark	GEX50	Electric					679	CHE Electric				
Forklift	Clark	GEX50	Electric					679	CHE Electric				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	849	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	719	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	670	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	722	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	7000 lb	2013	59	642	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	7000 lb	2013	59	310	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline			2016		745	CHE Gasoline				
Forklift	Doosan	G35C-7	Gasoline			2022		695	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline	Nissan	8,000 lb	2012	59	314	CHE Gasoline				
Forklift	Doosan	G35S-7	Gasoline	Kubota		2023	84	243	CHE Gasoline				
Forklift	Doosan	G35S-7	Gasoline	Kubota		2023	84	243	CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline			2023	61	243	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline	Mitsubishi	TB45	2011	72		CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline	Mitsubishi	TB45	2011	72		CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline	Mitsubishi	TB45	2016	72	213	CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline	Mitsubishi	TB45	2016	72	243	CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline	Mitsubishi	TB45	2016	72	400	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		299	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		437	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		261	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		580	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		695	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb	2013		49	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb	2013		407	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb			504	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb	2013		56	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline		8,000 lb	2012		213	CHE Gasoline				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	363	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	215	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	349	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	48	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	357	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	98	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	362	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	365	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	425	CHE Propane				
Forklift	Mitsubishi	FG45K-LP	LPG	Nissan	TB45L	2007	117	373	CHE Propane				
Forklift	Toyota	5FGC25	LPG		5 T	1987	54	75	CHE Propane		7/4/1905		
Forklift	Toyota	42-5FG25	LPG		3 T	1987	54	75	CHE Propane		7/4/1905		
Forklift	Toyota	5FGC25	LPG		5 T	1987	54	0	CHE Propane		7/4/1905		
Forklift	Toyota	42-5FG25	LPG		3 T	1987	54	0	CHE Propane		7/4/1905		
Forklift	Toyota	5FGC25	LPG		5 T	1987	54	75	CHE Propane		7/4/1905		
Forklift	Toyota	5FGC25	LPG		5 T	1987	54	75	CHE Propane		7/4/1905		
Forklift	Toyota	42-5FG25	LPG		3 T	1987	54	0	CHE Propane		7/4/1905		
Forklift	Toyota	42-5FG25	LPG		3 T	1987	54	0	CHE Propane		7/4/1905		
Forklift	Clark	CGP25	LPG	Mitsubishi	4G64	1999	50	250	CHE Propane		7/4/1905		
Forklift	Clark	CGP25	LPG	Mitsubishi	4G64	1999	50	100	CHE Propane		7/4/1905		
Forklift	Toyota	42-4FGC25	LPG		5 T	1987	54	0	CHE Propane		7/4/1905		
Forklift	Toyota	42-4FGC25	LPG		3 T	1987	54	0	CHE Propane		7/4/1905		
Forklift	Toyota	7FGC070	LPG	Impco	Vortec	2008	95	200	CHE Propane				
Forklift	Toyota	7FGC070	LPG	Impco	Vortec	2008	95	200	CHE Propane				
Forklift	Toyota	7FGC070	LPG	Impco	Vortec	2008	95	150	CHE Propane				
Forklift	Caterpillar	GP25N5	LPG	GCT	JNFXB02.548D	2018	62	510	CHE Propane		8/21/2013		
Forklift	Caterpillar	GP25N5	LPG	GCT	JNFXB02.548D	2018	62	523	CHE Propane		8/21/2013		
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	308	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	1005	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	1151	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	1131	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	565	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	553	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	527	CHE Propane				
Forklift	Caterpillar	GP30	LPG	Mitsubishi	3MCFB2350MEA	2003	57	251	CHE Propane		8/21/2013		
Forklift	Caterpillar	GP30	LPG	Mitsubishi	3MCFB2350MEA	2003	57	695	CHE Propane		8/6/2013		

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	677	CHE Propane		2/10/2016		
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	653	CHE Propane		2/10/2016		
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	433	CHE Propane				
Forklift			LPG				84	169	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	108	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	53	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	96	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	131	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	95	CHE Propane				
Forklift	Mitsubishi	FG25	LPG	Mitsubishi	4G63	1992	42	55	CHE Propane				
Forklift	Mitsubishi	FG25	LPG	Mitsubishi	4G63	1992	42	145	CHE Propane				
Forklift	Mitsubishi	FG35	LPG	GM	GM4.3	1992	58	0	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	233	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	124	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	3	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	103	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	205	CHE Propane				
Forklift	Hyster	Fortis 80	LPG	Kubota	WG3800	2014	46	795	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	282	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	131	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	16	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	139	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	121	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	229	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2015	98	609	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2015	98	702	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2015	98	353	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2022	98	823	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2022	98	237	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2022	98	267	CHE Propane				
Forklift	Hyster		LPG		5 T	2010	117	1288	CHE Propane				
Forklift	Hyster	H80XM	LPG	GM	6 cyl	2004	94	120	CHE Propane				
Forklift	Caterpillar	GP30K	LPG		6,000 lb	2000	62	273	CHE Propane				
Forklift	Caterpillar	GP30K	LPG		6,000 lb	2000	62	201	CHE Propane				
Forklift	Caterpillar	PG55N1	LPG	GCT	12000 lbs	2017	141	1059	CHE Propane				
Forklift	Toyota	8FGU30	LPG	Toyota	4Y	2018	57	1375	CHE Propane				
Forklift	Toyota	8FGU30	LPG	Toyota	4Y	2010	57	118	CHE Propane				
Forklift			LPG			1995	120	624	CHE Propane				
Forklift	Hyster	H35xm	LPG	Case	5 T	1995	45	52	CHE Propane				
Forklift	Toyota	7Fgu25	LPG	Toyota	5 T	2004	50	52	CHE Propane				
Forklift	Hyster	H155XL	LPG	Perkins	1004-4	2012	103	150	CHE Propane				
Forklift	Clark	C25L	LPG			2015		42	CHE Propane				
Forklift	Clark	C25L	LPG		5000 lbs	2015	75	98	CHE Propane				
Forklift	Clark	C25L	LPG	Cummins	5000 lbs	2010	70	18	CHE Propane				
Forklift	Clark	C25L	LPG	Cummins	5000 lbs	2016	70	1143	CHE Propane				
Forklift	Clark	C25L	LPG	Cummins	5000 lbs	2016	70	1173	CHE Propane				
Forklift	Clark	C25L	LPG	Cummins	5000 lbs	2016	70	1290	CHE Propane				
Forklift	Clark	C25L	LPG	Cummins	5000 lbs	2016	70	1232	CHE Propane				
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	0	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	938	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	1098	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	144	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	37	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	36	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	407	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	1358	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	1343	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	1612	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	1458	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	1626	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	1445	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	1290	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	107	CHE Diesel				4/1/2022
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169	873	CHE Diesel				6/1/2021
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169	1075	CHE Diesel				6/1/2021
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169	1147	CHE Diesel				6/1/2021
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169	904	CHE Diesel				6/1/2021
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169	1119	CHE Diesel				6/1/2021
Hybrid RTG	ZPMC		Diesel	Cummins	QSB5-G11	2023		111	CHE Diesel				1/1/2023
Hybrid RTG	ZPMC		Diesel					137	CHE Diesel				1/1/2023
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	930	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1205	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1318	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1233	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1147	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1112	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	745	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	0	CHE Diesel				
Loader	Caterpillar	988 K	Diesel	Caterpillar	C18	2021	560	2429	CHE Diesel				
Loader	Caterpillar	988 K	Diesel	Caterpillar	C18	2021	560	1858	CHE Diesel				
Loader	Catepillar	950B	Diesel	Caterpillar		1985	200	250	CHE Diesel				
Loader	Caterpillar	914M	Diesel			2019	96	70	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	355	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	326	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	399	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2017	420	1037	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2020	420	880	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	14A	2022	420	50	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	193	CHE Diesel				
Loader	Caterpillar	972M	Diesel	Caterpillar		2017	272	1510	CHE Diesel				
Loader	CAT	982-M	Diesel		C-13	2014		3000	CHE Diesel				
Loader	CAT	980-M	Diesel		C-13	2014		3000	CHE Diesel				
Loader	John Deere	844L	Diesel			2020			CHE Diesel				
Man Lift	JLG	1500SJ	Diesel	Deutz	TCD2.9 L4	2014	74	140	CHE Diesel				
Man Lift	JLG	860SJ	Diesel			2013	62	411	CHE Diesel				4/1/2022
Man Lift	JLG	185SJ	Diesel	Deutz	TCD 3.6L4	2017	100	176	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Man Lift	JLG	1500SJ	Diesel			2013	74	143	CHE Diesel				4/1/2022
Man Lift	JLG	1350SJP	Diesel	Deutz	TCD2.9L4	2017	99	95	CHE Diesel				6/1/2021
Man Lift	JLG		Diesel			2013		224	CHE Diesel				4/1/2022
Man Lift	JLG		Diesel			2021		82	CHE Diesel				4/1/2022
Man Lift	JLG		Diesel			2020		37	CHE Diesel				4/1/2022
Man Lift	JLG		Diesel			2000		42	CHE Diesel			4/1/2022	
Man Lift	JLG		Diesel			2012			CHE Diesel				
Man Lift	JLG		Diesel			2020			CHE Diesel				
Man Lift	JLG	600S	Diesel	Deutz	TD2.9L4	2014	67	771	CHE Diesel				
Man Lift	Genie		Diesel			2013	48	250	CHE Diesel				
Man Lift	Genie	S-85	Diesel			2009			CHE Diesel				
Man Lift	JLG		Electric					87	CHE Electric				
Man Lift	Genie	S60	Gasoline	Ford	LRG425-EFI	2000	82	0	CHE Gasoline				
Man Lift	JLG	600S	Gasoline	Ford	LRG425-EFI	2004	82	112	CHE Gasoline				
Miscellaneous	Peco		Diesel	Kubota		2010	13	1678	CHE Diesel				4/1/2022
Rail pusher	RailKing	RK 330	Diesel	Cummins	QSB6.7 195	2013	195	904	CHE Diesel				
Rail pusher	RailKing	RK 330	Diesel	Cummins	QSB6.7 195	2019	195	996	CHE Diesel				
Rail pusher	TRKMOB	Titan T4	Diesel			2013	150	1562	CHE Diesel				4/1/2022
Rail pusher	TRKMOB	Titan T4i	Diesel			2013	260	508	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1240	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	985	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	886	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1531	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1249	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1089	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1284	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1338	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1156	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1999	615	1424	CHE Diesel	6/24/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1999	615	1287	CHE Diesel	1/31/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	1147	CHE Diesel	11/1/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	2676	CHE Diesel	1/27/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	2209	CHE Diesel	11/22/2013			
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3080	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3125	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	2894	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3244	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3758	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	332	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3443	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3020	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3655	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3304	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3038	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3140	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3556	CHE Diesel				
Rub-trd Gantry Crane	ZPMC		Diesel			2005	515	3951	CHE Diesel				
Rub-trd Gantry Crane	ZPMC		Diesel			2005	515	3951	CHE Diesel				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane			Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Rub-trd Gantry Crane	ZPMC	RC50.8/66	Electric						CHE Electric				
Side pick	Hyster	H500HDS-EC	Diesel			2015		0	CHE Diesel				
Side pick	Hyster	H500HDS-EC	Diesel			2015		0	CHE Diesel				
Skid Steer Loader	Caterpillar	246 D	Diesel	Caterpillar	C3.3B	2020	73	268	CHE Diesel				
Skid Steer Loader	Caterpillar	226D	Diesel		C2.2	2015	67	300	CHE Diesel				
Skid Steer Loader	CAT	226-B	Diesel			2022		500	CHE Diesel				
STS Crane			Electric					66	CHE Electric				
STS Crane			Electric					436	CHE Electric				
STS Crane			Electric					331	CHE Electric				
STS Crane			Electric					681	CHE Electric				
STS Crane			Electric					800	CHE Electric				
STS Crane			Electric					2200	CHE Electric				
STS Crane			Electric					1321	CHE Electric				
STS Crane			Electric					1844	CHE Electric				
STS Crane			Electric					2474	CHE Electric				
STS Crane			Electric					2541	CHE Electric				
STS Crane			Electric					36	CHE Electric				
STS Crane			Electric					2294	CHE Electric				
STS Crane			Electric					53	CHE Electric				
STS Crane			Electric					22	CHE Electric				
STS Crane			Electric					18	CHE Electric				
STS Crane			Electric					17	CHE Electric				
STS Crane			Electric					174	CHE Electric				
STS Crane			Electric					176	CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane	ZPMC		Electric					1404	CHE Electric				
STS Crane	ZPMC		Electric					2137	CHE Electric				
STS Crane	ZPMC		Electric					2229	CHE Electric				
STS Crane	ZPMC		Electric					2596	CHE Electric				
STS Crane	ZPMC		Electric					2411	CHE Electric				
STS Crane	ZPMC		Electric					2541	CHE Electric				
STS Crane	ZPMC		Electric					2516	CHE Electric				
STS Crane	ZPMC		Electric					2569	CHE Electric				
STS Crane	ZPMC		Electric					2577	CHE Electric				
STS Crane	ZPMC		Electric					2556	CHE Electric				
STS Crane	ZPMC		Electric					981	CHE Electric				
STS Crane	ZPMC		Electric					907	CHE Electric				
STS Crane	ZPMC		Electric					2446	CHE Electric				
STS Crane	ZPMC		Electric					2051	CHE Electric				
STS Crane	ZPMC		Electric					357	CHE Electric				
STS Crane	ZPMC		Electric					224	CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
STS Crane	ZPMC		Electric						CHE Electric				
Sweeper	Tymco	DST-6	Diesel	Isuzu	6HKIX	2008	260	974	CHE Diesel				
Sweeper	TYMCO		Diesel	Cummins		2015	200	370	CHE Diesel				4/1/2022
Sweeper	TYMCO		Diesel	John Deere		2015	75	370	CHE Diesel				4/1/2022
Sweeper	Elgin	Regenx	Diesel	Cummins	QSB6.7	2019	200	300	CHE Diesel				6/1/2021
Sweeper	Elgin	Crosswind	Diesel			2019	220	82	CHE Diesel				4/1/2022
Sweeper	Tymco		Diesel			2016		199	CHE Diesel				
Sweeper	Peterbuilt		Diesel			2013		0	CHE Diesel				
Sweeper	Tymco		Diesel			2019		61	CHE Diesel				
Sweeper	Mar-Co	Powerboss	Diesel			2020		87	CHE Diesel				
Sweeper	Tennant	Centurion	Diesel			2005	180	65	CHE Diesel				
Sweeper	Tymco	600	Diesel			2018	210	500	CHE Diesel				
Sweeper	Johnson	VS562	Diesel	Cummins	B6.7	2019	300	0	CHE Diesel				
Sweeper	Armadillo		Diesel	Kubota		2019	34	260	CHE Diesel				
Sweeper	Tennant	5700XP	Electric	Tennant	AC drive motor		0	0	CHE Electric				
Sweeper	Advance	Warrior X32C	Electric					5	CHE Electric				
Sweeper	Tennant	800	LPG	Tennant	Gas/LP Ford 2.3 liter			22	CHE Propane				
Sweeper	Tenant	800	LPG	Impco	3.0L	2009	70	103	CHE Propane				
Sweeper	Tennant	6650XP	LPG	GM		2004	55	58	CHE Propane				
Sweeper	Nilfisk	SC8000	LPG	Kubota		2016	47	82	CHE Propane				
Sweeper	Nilfisk	SC8000	LPG	Kubota		2016	47	26	CHE Propane				
Sweeper	Advance		LPG			2015	114	140	CHE Propane				
Sweeper	Tennant	S30	LPG	GM	1.6L	2013	55	50	CHE Propane				
Top handler	TAYLOR	THDC 955	Diesel	Cummins	M11-C	2000	275	75	CHE Diesel	1/1/2014			
Top handler	Taylor		Diesel	Volvo	TAD 1360VE	2011	343	145	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD 1360VE	2011	343	62	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD 1360VE	2011	343	3033	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel		TAD 1360VE	2013	343	62	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	343	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1114	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	368	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1732	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	0	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1825	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1889	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1482	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1576	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1282	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1672	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1571	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	986	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1060	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1583	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1738	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1010	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	11	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1082	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1224	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1913	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1412	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1168	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	1773	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	1491	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	1312	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	2297	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	1826	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	927	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	1183	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	1434	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	1953	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	1079	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2011	330	2121	CHE Diesel				6/1/2021
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2006	335	1076	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2006	335	1411	CHE Diesel	1/28/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2005	330	1906	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2006	335	1616	CHE Diesel	2/13/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2005	335	1355	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2005	335	1017	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1744	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1049	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1924	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1768	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	969	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1906	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1367	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2052	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1606	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2321	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1684	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1751	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1967	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2012	330	1979	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2018		2608	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2018		2471	CHE Diesel				6/1/2021
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2019		1222	CHE Diesel				6/1/2021
Top handler			Diesel			2022		1451	CHE Diesel				1/1/2023
Top handler			Diesel			2022		1265	CHE Diesel				1/1/2023
Top handler			Diesel			2022		744	CHE Diesel				1/1/2023
Top handler			Diesel			2022		740	CHE Diesel				1/1/2023
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	888	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	888	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1909	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	674	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1103	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	924	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	3124	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1393	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	2192	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1032	CHE Diesel				6/1/2021
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	2097	CHE Diesel				6/1/2021
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2001	275	441	CHE Diesel	4/25/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2003	300	313	CHE Diesel	4/29/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2003	300	346	CHE Diesel	4/29/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2003	300	1509	CHE Diesel	4/19/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	300	692	CHE Diesel	4/22/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	335	878	CHE Diesel	4/22/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	335	572	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2007	275	554	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	370	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	372	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2007	275	372	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor		Diesel			2014		1349	CHE Diesel				6/1/2021
Top handler	Taylor		Diesel			2014		2364	CHE Diesel				6/1/2021
Top handler	Taylor		Diesel			2014		1233	CHE Diesel				6/1/2021
Top handler	Taylor	XLC-976	Diesel	Cummins		2015		1352	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2015		1838	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2015		1542	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2015		1593	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2015		2196	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2015		1095	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2018		1918	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2018		1260	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2018		2091	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2019		1683	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2019		1934	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2019		2256	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2019		1891	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1234	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1421	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1498	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1492	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1160	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1478	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1574	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel			2020		1807	CHE Diesel				6/1/2021
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	TXLC 976		Diesel	Volvo	TAD1371VE	2022	382	0	CHE Diesel				1/1/2023
Top handler	Hyster	HY	Diesel	Cummins	QSL9 350	2013	335	190	CHE Diesel				4/1/2022
Top handler	Hyster	RS 45-31CH	Diesel	Cummins	QSL9-350	2013	350	90	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	1770	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	1859	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2410	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2318	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2927	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	4102	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2445	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2787	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2391	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2919	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	1904	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	2647	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	2956	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	3207	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2539	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	0	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	1618	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2189	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2081	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2507	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2427	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	1952	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2890	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	3025	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2432	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2712	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	3372	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2554	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	4734	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2708	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2121	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2232	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	1536	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1995	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1143	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1188	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2627	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1914	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	687	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1998	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1664	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1564	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2438	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	775	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	0	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2642	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	968	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2411	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1899	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1114	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2010	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2647	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	0	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2365	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2439	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2019	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2322	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2500	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2689	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2001	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2230	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2354	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2502	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2218	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2367	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2420	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2167	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2302	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	738	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1860	CHE Diesel				
Top handler	Taylor	THDC-9555	Diesel	Cummins	QSM-11	2004	300	500	CHE Diesel	4/11/2012			
Top handler	Taylor	THDC-9555	Diesel	Cummins	LT 10-C	2006	250	500	CHE Diesel	4/9/2012			
Top handler	Taylor	TXC976	Diesel			2008		500	CHE Diesel	2/1/2011			
Top handler	Taylor	TXC976	Diesel			2008		395	CHE Diesel	2/1/2011			
Top handler	Taylor	TXC976	Diesel			2008		500	CHE Diesel	2/1/2011			
Top handler	Taylor	XEC207/8	Diesel			2020		690	CHE Diesel				
Top handler	Taylor	XEC207/8	Diesel			2020		645	CHE Diesel				
Top handler	Taylor	XEC207/8	Diesel			2018		761	CHE Diesel				
Tractor	Kubota	M59	Diesel	Kubota	2403M	2009	59	80	CHE Diesel				
Tractor	Mitsubishi	FG30BLP	LPG	Mitsubishi	N/A	1996	57	155	CHE Propane		8/6/2013		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	453	CHE Propane		8/22/2012		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	453	CHE Propane		8/23/2012		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	445	CHE Propane		8/21/2012		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	448	CHE Propane		4/27/2010		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	453	CHE Propane		2/10/2016		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	440	CHE Propane		2/10/2016		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	425	CHE Propane		2/10/2016		
Tractor	United Tractor	SM-50-F	LPG			1997	101	0	CHE Propane		7/13/2010		
Truck	Terex	TR45	Diesel	Cummins	QSK19	2019	545	720	CHE Diesel				
Truck	McClellan		Diesel	Cummins	L9	2018	177	1497	CHE On Road Diesel				4/1/2022
Truck	Sterline		Diesel			2006	300	680	CHE On Road Diesel				4/1/2022
Truck	Ford/Bosserman	F-750	Diesel			2007		305	CHE Diesel			4/1/2022	
Truck	Ford/Bosserman	F-750	Diesel			2007		531	CHE Diesel			4/1/2022	
Truck	International	Transtar	Diesel			2011		1880	CHE Diesel				
Truck	International	Transtar	Diesel			2011		2220	CHE Diesel				
Truck	International	Workstar	Diesel			2009		2199	CHE Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Truck	Kenworth	Combo	Diesel			2006		1237	CHE Diesel				
Truck	Freightliner	Combo	Diesel			2016		2086	CHE Diesel				
Truck	Ford	F750	Diesel	Ford	6.7	2016	270	0	CHE Diesel				
Truck	Ford	F-750	Diesel	Caterpillar	3126	2006	210	250	CHE On Road Diesel				
Truck	Taylor-Dunn	B0-210-36	Electric	Taylor-Dunn	DC Drive Motor	2008	0	2398	CHE Electric				
Truck	Taylor-Dunn	MX-016-00	Electric	Taylor-Dunn	DC Drive Motor	2008	0	69	CHE Electric				
Truck	Taylor-Dunn	MX-016-00	Electric	Taylor-Dunn	DC Drive Motor	2009	0	60	CHE Electric				
Truck	Taylor-Dunn	MX-016-00	Electric	Taylor-Dunn	DC Drive Motor	2009	0	35	CHE Electric				
Truck	Taylor-Dunn	B5-440-48	Electric	Taylor-Dunn	DC Drive Motor	2016	0	193	CHE Electric				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2019	225	272	CHE Diesel				
Yard tractor	Capacity	6BTA	Diesel	Cummins	ISB6.7	2013	200	2040	CHE Diesel				
Yard tractor	Kalmar		Diesel	Cummins	ISB240	2007	200	75	CHE On Road Diesel				
Yard tractor	Kalmar		Diesel	Cummins	ISB240	2007	200	150	CHE On Road Diesel				
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	15	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	478	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	351	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	704	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	931	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	100	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	973	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	0	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	44	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	750	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	983	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	848	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	578	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	587	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	24	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	944	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	338	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	772	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	876	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1964	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1186	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	878	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	856	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1081	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1189	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1087	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	555	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1212	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1181	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1106	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1510	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	276	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	730	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1011	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1011	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	887	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	724	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1237	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1199	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	648	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1129	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1294	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1220	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1351	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	114	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	396	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	801	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	755	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1409	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	704	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1701	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1615	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1300	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	739	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1326	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	245	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	645	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1021	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1048	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1661	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1061	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1341	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1295	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1138	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1387	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	980	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1580	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1239	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1387	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	952	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1248	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1532	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1190	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1074	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1038	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	815	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	385	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1448	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1190	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1012	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1418	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1348	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	750	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	349	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1159	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1362	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1497	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1005	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	133	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1396	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1507	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1279	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1231	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	703	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1458	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1558	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1364	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1166	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1034	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	59	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1133	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	678	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	771	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	566	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1347	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1299	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	249	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	383	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	784	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1225	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	960	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1223	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1329	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1999	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1338	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1672	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1467	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	2005	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1964	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1143	CHE Diesel				4/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1898	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	979	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2101	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2000	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1814	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2096	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1471	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2236	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	953	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2046	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2092	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	570	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2107	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1909	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2041	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2145	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2094	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1228	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2010	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2226	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1905	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2182	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2109	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1811	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	492	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2363	CHE On Road Diesel			6/1/2021	
Yard tractor			Diesel			2022		1157	CHE Diesel				1/1/2023
Yard tractor			Diesel			2022		1004	CHE Diesel				1/1/2023
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	288	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	335	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2028	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2080	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2085	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1803	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1521	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1701	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1747	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2028	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1980	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1840	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1666	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2089	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2021	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2114	CHE Diesel				6/1/2021
Yard tractor	Capacity	TJ7000	Diesel	Edelbrock	454 Engine	2017	204	526	CHE Diesel				6/1/2021
Yard tractor	Capacity	TJ7000	Diesel	Edelbrock	454 Engine	2017	204	692	CHE Diesel				6/1/2021
Yard tractor	Capacity	TJ7000	Diesel	Edelbrock	454 Engine	2017	204	1093	CHE Diesel				6/1/2021
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	692	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	403	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	918	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1198	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1030	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1151	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	669	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1749	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	887	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1121	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1201	CHE On Road Diesel			6/1/2021	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1434	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1089	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1178	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1147	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1097	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1193	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1014	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	2074	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1743	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1599	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1102	CHE On Road Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1070	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1293	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1773	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1351	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1218	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1423	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1271	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1280	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1091	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1146	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	986	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1303	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1328	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1125	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1485	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2038	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1287	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1393	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1596	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1619	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1088	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	617	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1115	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1370	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	957	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1323	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1354	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1198	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1049	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	0	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1462	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1184	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1365	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1081	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	800	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	890	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1226	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	620	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1564	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1070	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1268	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1711	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1473	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2619	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1466	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1195	CHE Diesel				6/1/2021
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1179	CHE Diesel				6/1/2021
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2162	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1864	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1738	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1546	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2044	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1667	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2661	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1918	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2245	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2991	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2018	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3088	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2602	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2453	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	845	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2165	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1953	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2486	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2114	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2095	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1908	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2425	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2044	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1517	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3120	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2173	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2475	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2086	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2907	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2154	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2668	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	0	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1501	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2852	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1044	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1326	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1453	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1244	CHE On Road Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	0	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	326	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	6	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	665	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	536	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	393	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	712	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1209	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	642	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	231	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	291	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	0	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1906	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1488	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2278	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2237	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1996	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2356	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1751	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	407	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2062	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2292	CHE On Road Diesel				4/1/2022
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2542	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	1315	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2922	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2750	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2972	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2000	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2612	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2025	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2656	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	1723	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2000	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	1566	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2000	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2093	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1976	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	848	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1825	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1695	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1606	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1595	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2356	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1940	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1467	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1573	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2211	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2143	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1816	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1770	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2144	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	96	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	215	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	245	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	242	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	143	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	183	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	185	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	208	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	141	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	206	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	214	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	224	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2022	225	0	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1473	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1338	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2439	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1895	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1599	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1124	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2784	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1625	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1551	CHE On Road Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2074	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2234	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1816	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1529	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1342	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1618	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1738	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1283	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	304	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2993	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2123	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1529	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1768	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1785	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1307	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	4695	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1117	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2226	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1260	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2171	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	97	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1245	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1339	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2544	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1653	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2929	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1455	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1779	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1857	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1921	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1901	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1674	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1482	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2925	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	303	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1912	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2151	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1801	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1686	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1628	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1326	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1029	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2983	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	1809	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2066	CHE On Road Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1695	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1838	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1984	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1564	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2256	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2028	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2518	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1729	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1978	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2411	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2164	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2115	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1861	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2056	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2320	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2271	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1005	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2152	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2137	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	1902	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2058	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2521	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2957	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2763	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2238	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2332	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2519	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2338	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2379	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2424	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2261	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2269	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2713	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2454	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2682	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2644	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	2613	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	2628	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	3263	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	2666	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	2392	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	2796	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1607	CHE On Road Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	736	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2142	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2061	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2026	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2177	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	5955	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	1973	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	1703	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	673	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	1742	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2059	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	1803	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	1291	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	3643	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	1124	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	910	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1486	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1868	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1713	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2296	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1138	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2081	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2562	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1596	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1073	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1774	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	705	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1719	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2113	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	898	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1702	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	883	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2805	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3136	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1509	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2111	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1484	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2125	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2129	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2266	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1822	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2364	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1400	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1566	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2838	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1432	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	284	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1916	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2352	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1625	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2173	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2438	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2529	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1913	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2000	CHE On Road Diesel				
Yard tractor	Kalmar	YT-30	Diesel			2021		790	CHE Diesel				
Yard tractor	Kalmar	YT-30	Diesel			2021		911	CHE Diesel				
Yard tractor	Ottawa	T2	Diesel	Cummins	QSB6.7 Tier 4 Final	2015	164	80	CHE Diesel				
Yard tractor	Ottawa	T2	Diesel	Cummins	QSB6.7 Tier 4 Final	2017	164	91	CHE Diesel				
Yard tractor	Kalmar	YT-30	Diesel	Cummins	ISB6.7 200	2012	200	500	CHE On Road Diesel				
Yard tractor	Kalmar	YT-30	Diesel	Cummins	ISB6.7 200	2013	200	400	CHE On Road Diesel				
Yard tractor	Kalmar	YT-30	Diesel	Cummins	QSB6.7	2017	164	300	CHE Diesel				
Yard tractor	Ottawa	YT-50	Electric					0	CHE Electric				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	408	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1149	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	937	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1023	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1186	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	957	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1244	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1188	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1084	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	806	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1124	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1069	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	944	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	922	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	884	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1335	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1135	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	593	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1219	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1098	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1221	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1306	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1038	CHE Gasoline				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1069	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1103	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1243	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	872	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	824	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	631	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	953	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1118	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1646	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1765	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	750	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1686	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1664	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1886	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1912	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1708	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1393	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1942	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1265	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1784	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1690	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1569	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	672	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	456	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1692	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1676	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1862	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1624	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1874	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1864	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	547	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1746	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1642	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1143	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1606	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	2	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1971	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1708	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2022	335		CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2022	335		CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1146	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1130	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	904	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1097	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	974	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	950	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	888	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1068	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1037	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	682	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1023	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335		CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1055	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	328	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1069	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1088	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1109	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2012	335	1190	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2012	335	1214	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	300	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	355	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	306	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	352	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	459	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	346	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	348	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	423	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	341	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	350	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	325	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	539	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	249	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	288	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	748	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	922	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	707	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	670	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	367	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	492	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	602	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	712	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	796	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	954	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	698	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1086	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	679	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	805	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	806	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	768	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	784	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	852	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	758	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1053	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	695	CHE Gasoline				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 3	Blue Cat	Renewable Diesel T0-T3	Renewable Diesel T4
Yard tractor	Dina		Gasoline	Chevy		2019	335	641	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	949	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	993	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	687	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	329	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	753	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	739	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2020	335	919	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	605	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	706	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	280	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	367	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	273	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	325	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	316	CHE Gasoline				