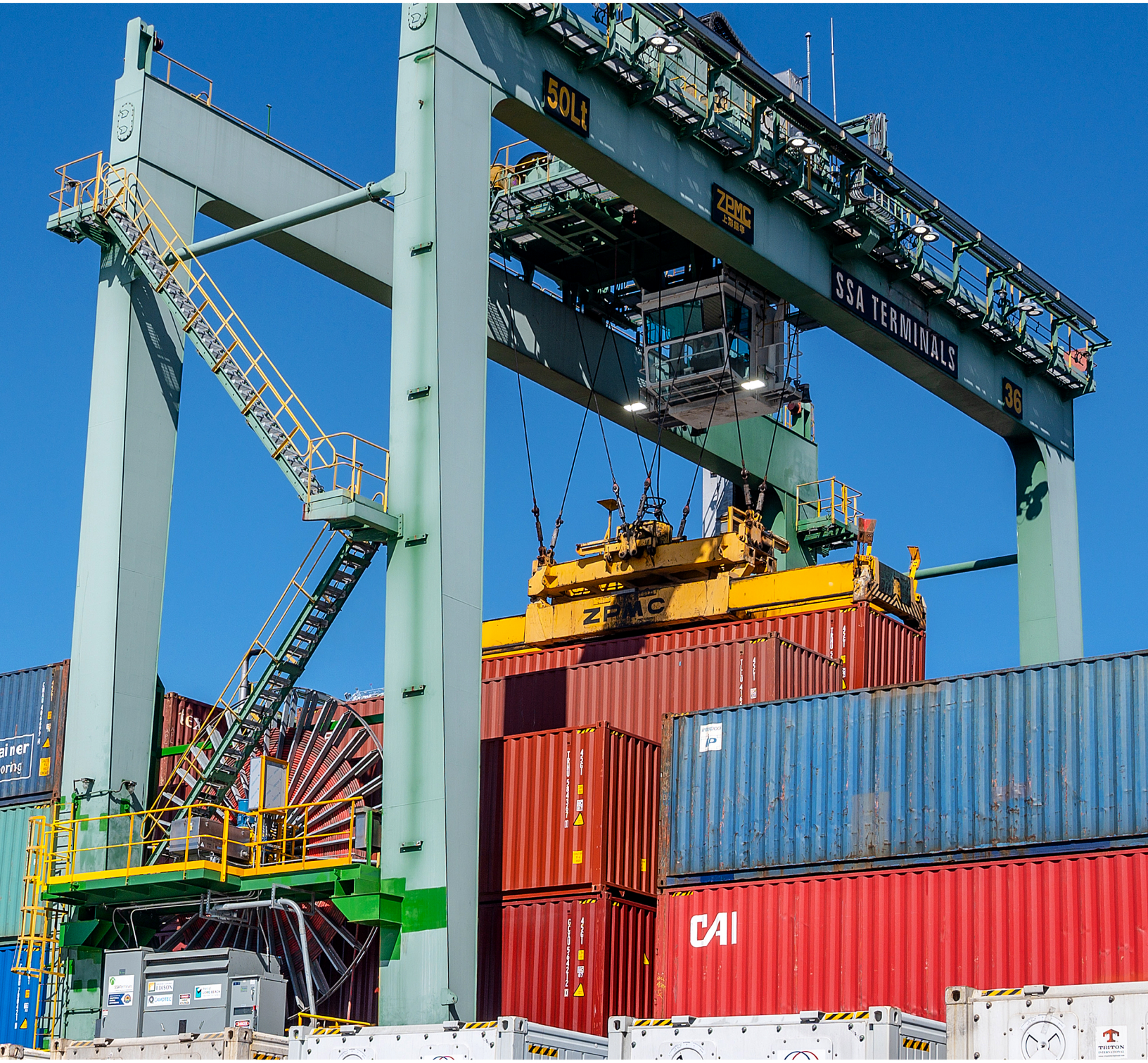
Port of
LONG BEACH
THE PORT OF CHOICE

AIR EMISSIONS INVENTORY - 2022



August 2023

Prepared by:

STARCREST CONSULTING GROUP, LLC

Port of Long Beach
2022 Air Emissions Inventory

Prepared for:

Port of LONG BEACH
THE PORT OF CHOICE

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Long Beach, CA

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ENVIRONMENTAL MANAGEMENT
AIR QUALITY • CLIMATE • SUSTAINABILITY

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EXECUTIVE SUMMARY

In 2022, the Port of Long Beach reported 9.1 million twenty-foot equivalent units (TEUs), the second busiest year in the Port's history after the 2021 record cargo volume of 9.4 million TEUs. The Port continued to experience some congestion in early 2022 with vessels waiting for berth availability. The Port and marine terminal operations were able to return to normal operations as cargo volumes softened in the second half of the year. This resulted in overall lower vessel emissions in 2022 as compared to 2021. In 2022, emissions for the other source categories are slightly lower than the previous year, tracking with the slight decrease in throughput compared with 2021.

Emissions Comparison to Previous Year

Containerized cargo throughput is 3% lower in 2022 than 2021. The average TEU per call and containership calls are similar as the previous year (-1%).

Table ES.1: 2021-2022 Container Throughput and Vessel Call Comparison

Year	Container Throughput (TEU)	All Arrivals	Containership Arrivals	Average TEU per Call
2021	9,384,368	1,905	912	10,290
2022	9,133,657	2,068	901	10,137
Change (%)	**-3%**	**9%**	**-1%**	**-1%**

Table ES.2 compares the 2022 emissions to the previous year which shows emissions are lower across the board. The 2021 emissions for OGV do not match the emissions included in the previous 2021 EI report because they are updated with revised auxiliary load for vessels at anchorage due to drifting that occurred in 2021.

Highlights for 2022 as compared to the previous year are:

- ✓ Vessel counts at anchorage were 24% lower and shifts were 29% lower in 2022 which resulted in lower ocean-going vessels (OGV) emissions compared to previous year. Containerships and cruise ships anchorage visits were 76% and 92% lower in 2022, respectively.
- ✓ Truck calls for 2014 model year and newer increased to 64% in 2022 as compared to 48% in 2021 which resulted in lower NO_x and PM emissions for trucks.

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

- ✓ Increase in Tier 4 engines for harbor craft since 2021 (24 vs 10 Tier 4 engines).
- ✓ Most of the container terminals switched to using renewable diesel for the equipment in 2022 which lowers cargo handling equipment (CHE) CO_2 emissions. Only tailpipe emissions reductions are accounted for in this inventory.
- ✓ Lower TEU cargo throughput resulted in lower activity which results in lower emissions for all source categories in 2022 as compared to previous year.

Table ES.2: 2021-2022 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
2021								
Ocean-going vessels	124	114	71	5,475	246	512	216	510,391
Harbor craft	9	9	9	382	0	70	18	37,506
Cargo handling equipment	11	10	9	322	2	1,128	44	142,817
Locomotives	20	19	20	556	1	137	31	47,684
Heavy-duty vehicles	6	5	6	951	4	307	46	409,849
Total	**170**	**157**	**116**	**7,686**	**252**	**2,154**	**355**	**1,148,248**
2022								
Ocean-going vessels	85	78	45	3,738	185	345	146	349,871
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	10	9	8	248	2	1,151	40	133,039
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**125**	**115**	**84**	**5,535**	**192**	**2,002**	**268**	**966,768**
Change between 2021 and 2022 (percent)								
Ocean-going vessels	-31%	-31%	-36%	-32%	-25%	-33%	-32%	-31%
Harbor craft	-28%	-27%	-28%	-17%	-7%	-13%	-28%	-8%
Cargo handling equipment	-13%	-13%	-14%	-23%	-6%	2%	-10%	-7%
Locomotives	-7%	-7%	-7%	-9%	-10%	-10%	-7%	-10%
Heavy-duty vehicles	-15%	-14%	-14%	-24%	-1%	5%	-13%	-1%
Total	**-27%**	**-27%**	**-28%**	**-28%**	**-24%**	**-7%**	**-25%**	**-16%**

Emissions Comparison to Baseline Year

The Port of Long Beach 2022 Air Emissions Inventory results and a comparison to the Port's baseline 2005 air emissions inventory are presented in Table ES.3. Overall, criteria pollutant emissions are significantly lower when comparing 2022 to 2005.

Table ES.3: 2005-2022 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	866	693	595	6,655	6,848	531	234	386,935
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	**1,183**	**994**	**912**	**15,064**	**6,975**	**2,820**	**748**	**977,845**
2022								
Ocean-going vessels	85	78	45	3,738	185	345	146	349,871
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	10	9	8	248	2	1,151	40	133,039
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**125**	**115**	**84**	**5,535**	**192**	**2,002**	**268**	**966,768**
Change between 2005 and 2022 (percent)								
Ocean-going vessels	-90%	-89%	-92%	-44%	-97%	-35%	-37%	-10%
Harbor craft	-81%	-81%	-81%	-55%	-89%	-73%	-76%	-1%
Cargo handling equipment	-71%	-71%	-76%	-79%	-86%	217%	-47%	28%
Locomotives	-56%	-57%	-56%	-60%	-99%	-31%	-56%	-29%
Heavy-duty vehicles	-98%	-98%	-98%	-86%	-90%	-79%	-87%	4%
Total	**-89%**	**-88%**	**-91%**	**-63%**	**-97%**	**-29%**	**-64%**	**-1%**

Table ES.4 summarizes and compares vessel arrivals and containerized TEU at POLB in 2005 and 2022. Relative to 2005 levels, containerized cargo throughput is up 36%, while containership arrivals to POLB are down 32%. Indicative of the larger vessels calling at POLB, the average number of TEU per vessel call doubled in 2022 as compared to 2005 with an average 10,137 TEU per containership call.

Table ES.4: 2005-2022 Container Throughput and Vessel Call Comparison

	Container Throughput (TEU)	All Arrivals	Containership Arrivals	Average TEU per Call
2005	6,709,818	2,617	1,332	5,037
2022	9,133,657	2,068	901	10,137
Change (%)	**36%**	**-21%**	**-32%**	**101%**

The criteria pollutant reductions over the last 17 years continued to be significant despite a 36% increase in TEU throughput in 2022 as compared to 2005. Several factors contributed to the lower emissions between 2005 and 2022:

- For OGVs, the primary reasons for emission reductions are 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 Green Ship Program, which incentivizes higher tier vessels and includes Environmental Ship Index (ESI) NO_x values. In 2022, 5% 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 and use of shore power at berth had a positive impact on CO_2e emissions with no significant increase in CO_2e emissions in 2022 as compared to 2005 despite of 36% increase in container throughput.

- For harbor craft, the emissions in 2022 are 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 2022, there are 24 Tier 4 engines in the inventory compared to 10 Tier 4 engines in 2021. 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 CHE, 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. The increase in CO_2e reflects increased activity and the fact that there are no lower CO_2 emission standards

and limited emission control measures available. In 2022, more terminal operators started and/or continue using renewable diesel which has a lower carbon intensity than conventional diesel when taking into consideration life cycle analysis. In this report, only tailpipe emissions reductions from renewable diesel use are accounted in the GHG emissions results.

- For locomotives, the decreases in fleet-wide emissions from line haul locomotives are 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, 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 64% in 2022 which results in NO_x and PM reductions due to the cleanest engine standards being used by the majority of the drayage trucks. In the past, the 2012 implementation of the final phase of the Port's Clean Truck Program (CTP) and substantial funding awarded towards truck replacement resulted in significant turnover of older trucks to newer and cleaner trucks as compared to 2005.

In 2022, anchorage calls are 24% lower compared to 2021, especially for containerships and cruise ships which saw a significant decrease of vessels at anchorage. As a result of the lower anchorage calls, there were also fewer shifts (-29%) in 2022 as compared to 2021.

Table ES.5: 2022-2021 Anchorage Calls Comparison

Vessel Type	2021 Anchorage	2022 Anchorage	2021-2022 Change
Containership	704	167	-76%
Tanker	561	690	23%
Cruise	12	1	-92%
Bulk Carrier	194	246	27%
Auto Carrier/RoRo	10	8	-20%
General cargo	20	26	30%
Total	**1,501**	**1,138**	**-24%**

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.6 compares the tons of emissions per 10,000 TEU in 2005, 2021, and 2022.

Table ES.6: 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	1.76	1.48	1.36	22.45	10.40	4.20	1.11	1,457
2021	0.18	0.17	0.12	8.19	0.27	2.30	0.38	1,224
2022	0.14	0.13	0.09	6.06	0.21	2.19	0.29	1,058
CAAP Progress	**-92%**	**-92%**	**-93%**	**-73%**	**-98%**	**-48%**	**-74%**	**-27%**
Previous Year	**-25%**	**-25%**	**-26%**	**-26%**	**-22%**	**-4%**	**-23%**	**-13%**

Progress Towards CAAP Goals

Tables ES.7 and ES.8 summarize the air emissions reductions of DPM, NO_x, and SO_x associated with good 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, 2022 emission reduction levels of DPM, NO_x and SO_x surpassed the 2023 SPB Emission Reduction Standards.

Table ES.7: 2022 Emissions Reductions Compared to San Pedro Bay CAAP

Pollutant	2022 Actual Reductions	2023 Emission Reduction Standard
DPM	91%	77%
NO_x	63%	59%
SO_x	97%	93%

Table ES.8: 2005-2022 Emissions Reductions Compared to San Pedro Bay CAAP by Source Category

Category	2005		2022
DPM (tons)			
Ocean-going vessels	595		45
Harbor craft	36		7
Cargo handling equipment	33		8
Locomotives	43		19
Heavy-duty vehicles	205		5
Total	**912**		**84**
Cumulative DPM Emissions Reduction Achieved in 2022			**91%**
CAAP San Pedro Bay DPM Emissions Reduction Standards		**2023**	**77%**
NO_x (tons)			
Ocean-going vessels	6,655		3,738
Harbor craft	699		317
Cargo handling equipment	1,165		248
Locomotives	1,273		508
Heavy-duty vehicles	5,273		725
Total	**15,064**		**5,535**
Cumulative NO_x Emissions Reduction Achieved in 2022			**63%**
CAAP San Pedro Bay NO_x Emissions Reduction Standards		**2023**	**59%**
SO_x (tons)			
Ocean-going vessels	6,848		185
Harbor craft	3		0
Cargo handling equipment	11		2
Locomotives	76		0
Heavy-duty vehicles	37		4
Total	**6,975**		**192**
Cumulative SO_x Emissions Reduction Achieved in 2022			**97%**
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 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

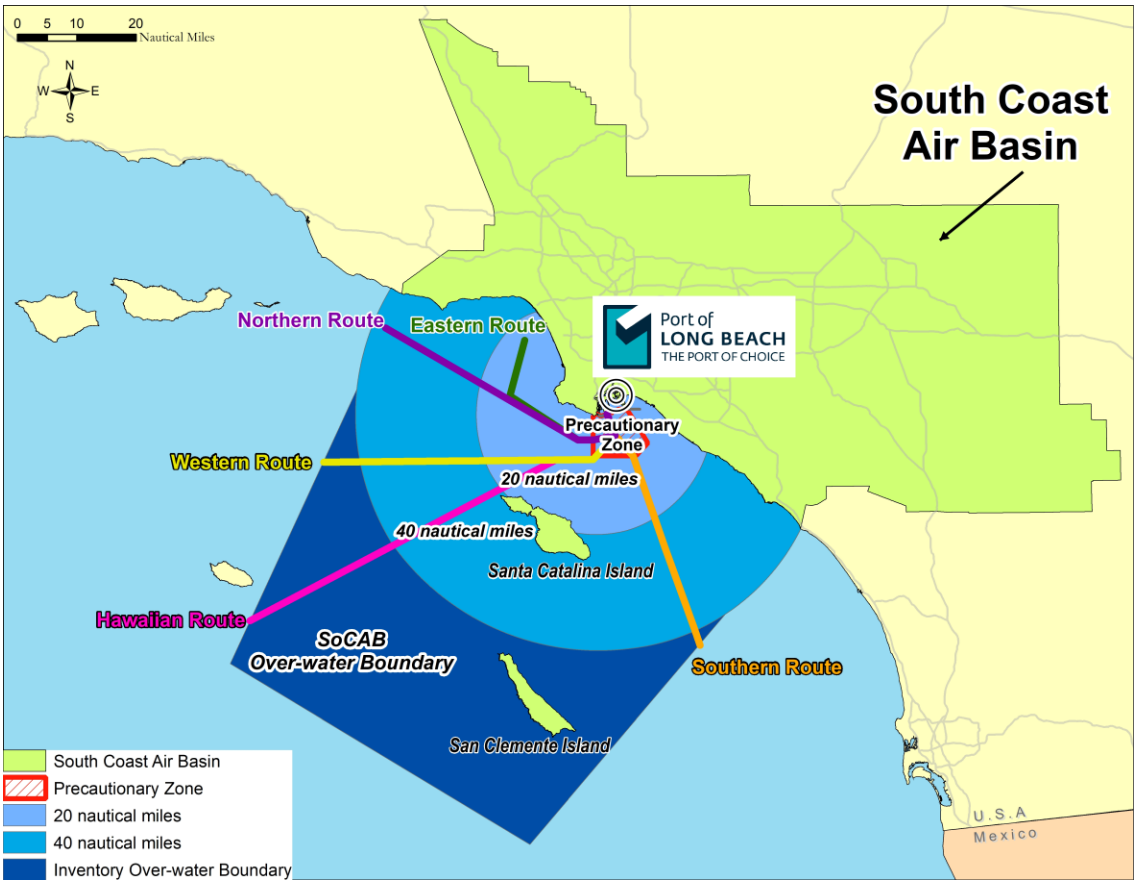


Figure 1.2 shows the location of the anchorage areas for San Pedro Bay Ports. The orange shading shows the POLB terminals. The green areas are the known anchorage areas. Vessel emissions at anchorage are included in the air emissions inventory report as part of the OGV emissions. The Precautionary Area, 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

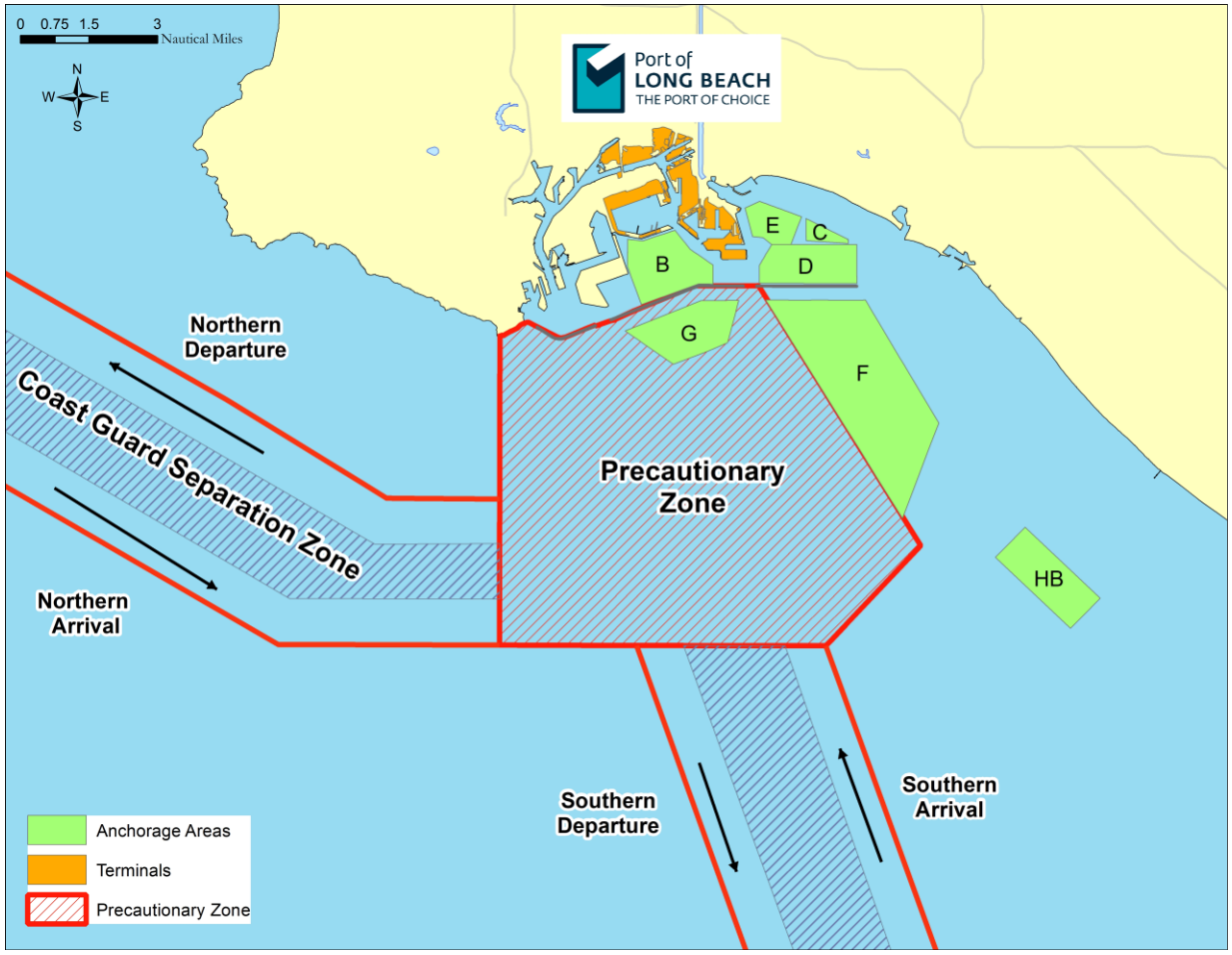


Figure 1.3 shows the land area of active Port terminals in 2022. The geographical domain for cargo handling equipment is the terminals and facilities on which they operate.

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 2022, containerships and tankers continued to be the predominant vessels with 69% of total movements.

Emissions Estimation Methodology

The methodology to estimate 2022 emissions from OGVs is described in Section 2 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. The following improvements were made in estimating 2022 OGV emissions:

- Added LNG emission factors for vessels that switched to LNG fuel while at the Port.
- Updated auxiliary engine and auxiliary boiler default loads using the Port's Vessel Boarding Program (VBP) data collected since the completion of the 2021 EI.

Table 2.1 lists the emission factors for engines and steam boilers using LNG fuel per EPA's Ports EI Guidance for most pollutants and IMO 4th GHG report for SO_x emission factor. In 2022, there were 4 vessels (25 arrivals) that used LNG fuel.

Table 2.1: Emission Factors for Engines and Steam Boilers using LNG fuel, g/kWh

Engine Category	IMO Tier	Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Propulsion engines	All	All	0.03	0.028	0.00	1.30	0.005	1.3	0.00	456.50	0.029	0.00
Auxiliary engines	All	All	0.03	0.028	0.00	1.30	0.005	1.3	0.00	456.50	0.029	0.00
Steam boilers	na	na	0.03	0.028	0.00	1.30	0.005	1.3	0.00	456.50	0.029	0.00

Tables 2.2 through 2.4 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 2.2: 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 2.3: 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 2.4: 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 OGV 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 emissions from auxiliary engines on ocean going vessels.

Emission Estimates

Summaries of the 2022 OGV emissions estimates are presented in Tables 2.5 through 2.7.

Table 2.5: 2022 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	2	2	128	4	14	7	7,268
Bulk	6	5	4	310	13	29	10	21,688
Containership	30	28	18	1,616	57	139	67	126,458
Cruise	6	5	5	347	13	30	12	19,352
General Cargo	1	1	1	51	2	5	2	3,532
RoRo	1	1	0	34	3	3	1	5,902
Tanker	39	36	16	1,251	93	126	48	165,670
Total	**85**	**78**	**45**	**3,738**	**185**	**345**	**146**	**349,871**

Table 2.6: 2022 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	6.9	6.4	6.9	428	13	42	15	24,278
Transit	Auxiliary Boiler	0.6	0.6	0.0	7	2	1	0	3,003
Transit	Main Engine	11.2	10.3	10.0	1,217	24	85	42	47,674
Total Transit		**18.8**	**17.3**	**16.9**	**1,651**	**39**	**128**	**57**	**74,955**
Maneuvering	Auxiliary Engine	2.0	1.8	2.0	121	4	12	4	6,978
Maneuvering	Auxiliary Boiler	0.3	0.2	0.0	3	1	0	0	1,223
Maneuvering	Main Engine	1.2	1.1	1.2	134	2	11	10	3,843
Total Maneuvering		**3.5**	**3.2**	**3.2**	**258**	**6**	**23**	**14**	**12,044**
Hotelling at-berth	Auxiliary Engine	16.0	14.7	15.9	919	30	98	35	56,464
Hotelling at-berth	Auxiliary Boiler	30.7	28.3	0.0	316	74	32	16	143,067
Hotelling at-berth	Main Engine	0.0	0.0	0.0	0	0	0	0	0
Total Hotelling at-berth		**46.7**	**42.9**	**15.9**	**1,235**	**104**	**130**	**51**	**199,530**
Hotelling at-anchorage	Auxiliary Engine	9.5	8.7	9.5	526	19	57	21	32,924
Hotelling at-anchorage	Auxiliary Boiler	6.6	6.1	0.0	67	17	7	3	30,417
Hotelling at-anchorage	Main Engine	0.0	0.0	0.0	0	0	0	0	0
Total Hotelling at-anchorage		**16.1**	**14.8**	**9.5**	**593**	**36**	**63**	**24**	**63,342**
Total		**85.0**	**78.2**	**45.5**	**3,738**	**185**	**345**	**146**	**349,871**

Table 2.7: 2022 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	34	32	34	1,993	65	208	75	120,643
Auxiliary Boiler	38	35	0	393	94	40	20	177,710
Main Engine	12	11	11	1,351	26	96	51	51,517
Total	**85**	**78**	**45**	**3,738**	**185**	**345**	**146**	**349,871**

Operational Profiles

Table 2.8 presents the numbers of arrivals, departures, and shifts associated with vessels at the Port in 2022. An arrival is a vessel that arrives from the sea to a berth or to anchorage prior to shifting to a berth.

Table 2.8: 2022 Total OGV Activities

Vessel Type	Arrival	Departure	Shift	Total
Auto Carrier	181	178	25	384
Bulk	231	233	297	761
Bulk - Heavy Load	1	1	0	2
Bulk - Self Discharging	27	27	7	61
Container - 1000	42	42	14	98
Container - 2000	199	205	57	461
Container - 3000	95	96	27	218
Container - 4000	141	141	84	366
Container - 5000	28	30	21	79
Container - 6000	13	13	8	34
Container - 7000	1	1	0	2
Container - 8000	50	50	6	106
Container - 9000	12	12	6	30
Container - 10000	84	84	28	197
Container - 11000	60	61	22	143
Container - 12000	7	7	2	16
Container - 13000	92	93	13	198
Container - 14000	69	65	11	145
Container - 15000	5	5	0	10
Container - 16000	2	1	0	3
Container - 19000	0	1	1	2
Container - 20000	1	1	0	2
Cruise	187	187	1	375
General Cargo	59	60	37	156
RoRo	28	28	3	59
Tanker - Chemical	143	126	272	541
Tanker - Handysize	8	8	16	32
Tanker - Panamax	51	45	97	193
Tanker - Aframax	109	111	188	408
Tanker - Suezmax	86	85	158	329
Tanker - VLCC	53	50	207	310
Tanker - ULCC	3	3	15	21
Total	**2,068**	**2,050**	**1,623**	**5,742**

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, the actual shore power records are used if the vessel connected to shore power. If actual VBP data or shore power data is not available, call-weighted average of VBP data points are used as defaults. Table 2.9 presents the auxiliary engine load defaults by vessel type and by mode.

Table 2.9: 2022 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	305	807	179	305
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 - 7000	1,649	2,575	1,066	1,050
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	1,675	1,975	925	1,050
Container - 19000	2,000	2,800	1,200	1,100
Container - 20000	2,050	2,870	1,230	1,128
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 2.10 presents the 2022 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.

Table 2.10: 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	103	132	132
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 - 7000	308	590	733	727
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	238	440	525	525
Container - 19000	38	144	848	848
Container - 20000	39	148	869	869
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 2.11 lists the auxiliary engine defaults for all cruise ships (diesel electric and non-diesel electric) engaged in passenger service at the Port in 2022. These auxiliary engine defaults values are produced by calculating the call-weighted average of VBP data by mode of operation for each cruise vessel size group up to 4,000 passengers. For vessels larger than 4,000 passengers, the defaults were scaled up to reflect the operations of larger size vessels. Normal cruise ship operations were underway for the full 2022 calendar year.

Table 2.11: Cruise Ship Average Auxiliary Engine Load Defaults, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<1,500	3,994	5,268	3,069	2,289
1,500 < 2,000	7,000	9,000	5,613	na
2,000 < 2,500	11,000	11,350	6,900	na
2,500 < 3,000	9,781	8,309	6,089	5,916
3,000 < 3,500	8,292	10,369	8,292	7,475
3,500 < 4,000	9,945	11,411	10,445	10,191
4,000 < 4,500	12,500	14,000	12,000	9,900
4,500 < 5,000	13,000	14,500	13,000	na

Table 2.12 presents the load defaults for the auxiliary boilers for diesel electric cruise ships. The default averages presented are an operational average, meaning they factor in if a vessel reported that they do not use their auxiliary boiler in a certain mode. In 2022, all of the cruise vessels that visited the Port were diesel electric.

Table 2.12: Cruise Ship Auxiliary Boiler Load Defaults by Mode for, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<1,500	992	784	867	766
1,500 < 2,000	1,070	1,145	1,951	976
2,000 < 2,500	1,382	1,773	3,005	1,506
3,000 < 3,500	697	1,199	895	431
3,500 < 4,000	401	347	1,984	1,068
4,000 < 4,500	0	0	989	868
4,500 < 5,000	0	0	503	503

Vessel hotelling times at-berth, regardless of shore power usage, are shown in Table 2.13. The RoRo vessel(s) with high hotelling hours include ready reserve vessels that use shore power while at berth.

Table 2.13: 2022 At-Berth Hotelling Times, hours and days

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days
Auto Carrier	2	74	16	0.7
Bulk - General	3	435	90	3.7
Bulk - Heavy Load	49	49	49	2.0
Bulk - Self Discharging	7	53	30	1.2
Container - 1000	5	173	33	1.4
Container - 2000	3	165	48	2.0
Container - 3000	2	107	40	1.7
Container - 4000	3	187	58	2.4
Container - 5000	4	195	73	3.0
Container - 6000	13	142	77	3.2
Container - 7000	60	60	60	2.5
Container - 8000	37	217	91	3.8
Container - 9000	2	204	110	4.6
Container - 10000	1	317	116	4.8
Container - 11000	2	244	107	4.4
Container - 12000	52	221	146	6.1
Container - 13000	3	286	134	5.6
Container - 14000	13	288	162	6.8
Container - 15000	130	192	178	7.4
Container - 16000	104	160	132	5.5
Container - 19000	47	47	47	2.0
Container - 20000	171	171	171	7.1
Cruise	4	14	10	0.4
General Cargo	9	198	49	2.1
RoRo	4	5,462	583	24.3
Tanker - Chemical	2	398	48	2.0
Tanker - Handysize	4	90	24	1.0
Tanker - Panamax	5	153	37	1.5
Tanker - Aframax	2	295	57	2.4
Tanker - Suezmax	2	88	24	1.0
Tanker - VLCC	3	173	33	1.4
Tanker - ULCC	10	61	29	1.2

The time spent at anchorage are listed in Table 2.14.

Table 2.14: 2022 At-Anchorage Hotelling Times, hours

Vessel Type	Min Hours	Max Hours	Avg Hours	Anchorage Avg Days	Anchorage Activity Count
Auto Carrier	4	111	41	1.7	8
Bulk - General	1	771	115	4.8	240
Bulk - Heavy Load	0	0	0	0.0	0
Bulk - Self Discharging	7	102	30	1.3	6
Container - 1000	9	107	36	1.5	12
Container - 2000	5	440	69	2.9	30
Container - 3000	3	192	41	1.7	15
Container - 4000	2	327	51	2.1	54
Container - 5000	4	144	44	1.8	13
Container - 6000	12	27	20	0.8	3
Container - 7000	0	0	0	0.0	0
Container - 8000	1	345	100	4.2	4
Container - 9000	34	61	51	2.1	3
Container - 10000	2	59	31	1.3	9
Container - 11000	1	238	62	2.6	12
Container - 12000	270	270	270	11.3	1
Container - 13000	18	131	61	2.6	3
Container - 14000	15	156	43	1.8	8
Container - 15000	0	0	0	0.0	0
Container - 16000	0	0	0	0.0	0
Container - 19000	0	0	0	0.0	0
Container - 20000	0	0	0	0.0	0
Cruise	1	1	1	0.1	1
General Cargo	4	315	82	3.4	26
RoRo	0	0	0	0.0	0
Tanker - Chemical	1	627	66	2.7	170
Tanker - Handysize	4	115	49	2.0	11
Tanker - Panamax	3	419	60	2.5	85
Tanker - Aframax	1	598	67	2.8	158
Tanker - Suezmax	4	256	61	2.5	122
Tanker - VLCC	3	540	90	3.8	135
Tanker - ULCC	9	294	104	0.0	9
Total					**1,138**

For this EI, a frequent caller is a vessel that made six or more calls in one calendar year. Table 2.15 shows that 8% of vessels that called the Port in 2022 are frequent callers (i.e., six or more calls/year).

Table 2.15: 2022 Percentage of Frequent Callers

Vessel Type	Frequent Vessels	Total Vessels	Percent Frequent Vessels
Auto Carrier	2	122	2%
Bulk - General	0	204	0%
Bulk - Heavy Load	0	1	0%
Bulk - Self Discharging	2	4	50%
Container - 1000	3	10	30%
Container - 2000	12	37	32%
Container - 3000	6	19	32%
Container - 4000	4	49	8%
Container - 5000	0	13	0%
Container - 6000	0	5	0%
Container - 7000	0	1	0%
Container - 8000	5	15	33%
Container - 9000	0	7	0%
Container - 10000	4	24	17%
Container - 11000	0	26	0%
Container - 12000	0	3	0%
Container - 13000	7	27	26%
Container - 14000	1	33	3%
Container - 15000	0	4	0%
Container - 16000	0	2	0%
Container - 20000	0	1	0%
Cruise	3	3	100%
General Cargo	0	39	0%
RoRo	1	3	33%
Tanker - Chemical	5	78	6%
Tanker - Handysize	0	4	0%
Tanker - Panamax	0	27	0%
Tanker - Aframax	5	37	14%
Tanker - Suezmax	7	29	24%
Tanker - VLCC	0	35	0%
Tanker - ULCC	0	2	0%
Total	**67**	**864**	
Average			**8%**

Table 2.16 presents the percent of engine tier by vessel type for arrivals/shift at the Port in 2022. In 2022, 5% 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 2.16: 2022 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	8%	72%	12%	8%	0%	181
Bulk - General	1%	39%	56%	4%	0%	231
Bulk - Heavy Load	0%	100%	0%	0%	0%	1
Bulk - Self Discharging	7%	33%	59%	0%	0%	27
Container - 1000	36%	41%	24%	0%	0%	42
Container - 2000	0%	57%	4%	5%	35%	199
Container - 3000	10%	26%	28%	36%	0%	95
Container - 4000	1%	88%	11%	0%	0%	141
Container - 5000	0%	100%	0%	0%	0%	28
Container - 6000	0%	100%	0%	0%	0%	13
Container - 7000	0%	100%	0%	0%	0%	1
Container - 8000	0%	60%	40%	0%	0%	50
Container - 9000	0%	50%	50%	0%	0%	12
Container - 10000	0%	35%	66%	0%	0%	84
Container - 11000	0%	45%	55%	0%	0%	60
Container - 12000	0%	0%	100%	0%	0%	7
Container - 13000	0%	27%	72%	1%	0%	92
Container - 14000	0%	10%	81%	9%	0%	69
Container - 15000	0%	0%	0%	100%	0%	5
Container - 16000	0%	0%	100%	0%	0%	2
Container - 20000	0%	0%	100%	0%	0%	1
Cruise	55%	18%	28%	0%	0%	187
General Cargo	2%	56%	42%	0%	0%	59
RoRo	0%	0%	93%	0%	7%	28
Tanker - Chemical	6%	15%	72%	6%	0%	143
Tanker - Handysize	50%	38%	13%	0%	0%	8
Tanker - Panamax	0%	73%	28%	0%	0%	51
Tanker - Aframax	0%	50%	43%	7%	0%	109
Tanker - Suezmax	12%	83%	5%	1%	0%	86
Tanker - VLCC	0%	17%	63%	20%	0%	53
Tanker - ULCC	0%	0%	100%	0%	0%	3
Total	**8%**	**45%**	**38%**	**5%**	**3%**	**2,068**

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. Since the 2021 EI, ATBs are included in the harbor craft inventory 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)
- Crew and supply boats
- Excursion vessels
- Ferry vessels
- Government vessels
- Harbor tugboats
- Ocean tugboats
- Work boats

Emissions Estimation Methodology

The methodology to estimate 2022 emissions from harbor craft is described in Section 3 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. The Port's harbor craft emission calculation methodology is consistent with CARB methodology[5].

Geographical Domain

Emissions are estimated for harbor craft operating within the South Coast Air Basin over-water boundary.

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 2022

[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*

Emission Estimates

Table 3.1 summarizes the estimated harbor craft vessel emissions by vessel type and engine type.

Table 3.1: 2022 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	0.4	0.3	0.4	13.4	0.0	3.5	0.5	2,017
	Propulsion	1.4	1.3	1.4	69.1	0.1	14.2	2.9	8,527
Assist tugboat Total		**1.7**	**1.6**	**1.7**	**82.5**	**0.1**	**17.7**	**3.4**	**10,543**
ATB	Auxiliary	0.0	0.0	0.0	0.7	0.0	0.2	0.0	95
	Propulsion	0.2	0.2	0.2	4.6	0.0	0.7	0.5	312
ATB Total		**0.3**	**0.2**	**0.3**	**5.3**	**0.0**	**0.8**	**0.5**	**407**
Barge - ATB	Auxiliary	0.0	0.0	0.0	0.4	0.0	0.1	0.0	32
	Propulsion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Barge Total		**0.0**	**0.0**	**0.0**	**0.4**	**0.0**	**0.1**	**0.0**	**32**
Crew Boat	Auxiliary	0.1	0.1	0.1	1.9	0.0	0.5	0.1	266
	Propulsion	0.6	0.6	0.6	29.5	0.0	4.9	1.2	2,736
Crew boat Total		**0.7**	**0.6**	**0.7**	**31.4**	**0.0**	**5.4**	**1.2**	**3,002**
Excursion	Auxiliary	0.1	0.1	0.1	1.7	0.0	0.5	0.1	183
	Propulsion	0.2	0.2	0.2	7.6	0.0	1.5	0.4	746
Excursion Total		**0.3**	**0.3**	**0.3**	**9.3**	**0.0**	**2.0**	**0.5**	**929**
Ferry	Auxiliary	0.1	0.1	0.1	1.8	0.0	0.5	0.1	253
	Propulsion	1.5	1.4	1.5	75.7	0.1	14.7	3.2	8,447
Ferry Total		**1.6**	**1.5**	**1.6**	**77.5**	**0.1**	**15.2**	**3.3**	**8,700**
Government	Auxiliary	0.0	0.0	0.0	0.7	0.0	0.2	0.0	95
	Propulsion	0.2	0.2	0.2	11.8	0.0	2.5	0.6	1,471
Government Total		**0.2**	**0.2**	**0.2**	**12.5**	**0.0**	**2.7**	**0.6**	**1,567**
Ocean tugboat	Auxiliary	0.1	0.1	0.1	2.0	0.0	0.5	0.1	248
	Propulsion	0.9	0.9	0.9	46.5	0.0	6.6	1.4	3,547
Ocean tugboat Total		**1.0**	**0.9**	**1.0**	**48.5**	**0.0**	**7.1**	**1.5**	**3,796**
Harbor tugboat	Auxiliary	0.3	0.3	0.3	8.0	0.0	2.3	0.3	1,197
	Propulsion	0.8	0.8	0.8	39.2	0.0	7.2	1.6	4,215
Harbor tugboat Total		**1.1**	**1.0**	**1.1**	**47.2**	**0.1**	**9.6**	**1.9**	**5,412**
Work boat	Auxiliary	0.0	0.0	0.0	0.3	0.0	0.1	0.0	37
	Propulsion	0.0	0.0	0.0	1.9	0.0	0.3	0.1	246
Work boat Total		**0.0**	**0.0**	**0.0**	**2.2**	**0.0**	**0.4**	**0.1**	**283**
Harbor Craft Total		**6.9**	**6.5**	**6.9**	**316.7**	**0.3**	**60.9**	**13.0**	**34,671**

Operational Profiles

Table 3.2 lists the harbor craft engine count by USEPA marine engine emissions standards tier level and engine type in 2022.

Table 3.2: 2022 Harbor Craft Engine Tier Count

Engine Tier	Auxiliary Engine Count	Propulsion Engine Count	Total Engine Count
Unknown	18	0	18
Tier 0	22	12	34
Tier 1	5	11	16
Tier 2	24	92	116
Tier 3	123	51	174
Tier 4	0	24	24
Total	**192**	**190**	**382**

Table 3.3 summarizes the energy consumption (kWh) per engine tier for 2022 harbor craft that operated at the Port. The kWh for engines with unknown Tier were based on default engine kW and/or engine model year. Tier 2 to Tier 4 engines consumed 90% of the total harbor craft related energy for 2022.

Table 3.3: Harbor Craft Energy Consumption by Engine Tier, kWh and %

Engine Tier	2022 kWh	2022 % of Total
Tier 0	449,822	0.9%
Tier 1	4,226,339	8.6%
Tier 2	18,001,474	36.7%
Tier 3	18,352,782	37.4%
Tier 4	8,035,037	16.4%
Total	**49,065,454**	**100%**

Tables 3.4 and 3.5 summarize the characteristics of main and auxiliary engines, respectively, by vessel type operating at the Port in 2022. Averages of the model year, horsepower, or operating hours are used as default values when specific data is not available. Defaults were used for 1% of model year values (five engines), 7% of horsepower values (26 engines), and 1% of operating hours (five engines). 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 3.4: 2022 Propulsion Engine Characteristics by Harbor Craft Type

Propulsion Engines												
Harbor Craft Type	Vessel Count	Engine Count	Model year			Horsepower			Annual Operating Hours			
			Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	
Assist tugboat	16	32	1999	2021	2013	2,000	3,420	2,651	0	1,873	1,134	
ATB	6	12	2001	2018	2009	2,200	5,095	4,032	10	40	23	
Crew boat	16	39	2003	2021	2011	290	1,450	617	17	1,736	694	
Excursion	9	16	1980	2021	2006	150	500	354	204	2,851	864	
Ferry	12	26	2008	2022	2012	180	2,680	1,851	54	1,737	916	
Government	4	8	2013	2016	2014	803	2,012	1,408	180	2,334	1,162	
Ocean tugboat	4	8	2004	2019	2012	1,875	2,000	1,906	500	1,500	875	
Harbor tugboat	20	40	2004	2020	2012	300	3,386	1,100	1	3,948	958	
Work boat	5	9	2008	2022	2014	210	671	477	16	751	247	
Total	**92**	**190**										

Table 3.5: 2022 Auxiliary Engine Characteristics by Harbor Craft Type

Auxiliary Engines												
Harbor Craft Type	Vessel Count	Engine Count	Model year			Horsepower			Annual Operating Hours			
			Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	
Assist tugboat	16	35	2010	2021	2016	54	369	208	0	2,420	1,493	
ATB	6	14	2001	2018	2012	133	298	217	35	506	126	
Barge -ATB		30	2001	2019	2003	95	371	271	9	116	24	
Crew boat	16	20	2009	2021	2014	13	180	63	8	2,467	876	
Excursion	9	10	1980	2021	2008	12	90	54	434	2,968	1,379	
Ferry	12	18	2008	2017	2011	18	120	67	506	1,916	882	
Government	4	12	2013	2019	2013	16	2012	865	18	3,616	622	
Ocean tugboat	4	8	2004	2019	2012	90	150	127	500	1,500	875	
Harbor tugboat	20	37	2004	2020	2012	15	429	145	1	3,013	910	
Work boat	5	8	1979	2015	2004	40	101	70	34	896	347	
Total	**92**	**192**										

SECTION 4 CARGO HANDLING EQUIPMENT

Source Description

Cargo handling equipment (CHE) typically operate 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.[6] 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 4[7].

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 2022 calendar year.

[6]CARB, 2017 Off-road Diesel Emission Factors and 2017 Off-road Diesel Emission Factors Documentation. *www.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-*

Emission Estimates

A summary of CHE emissions by terminal type shows that 95% of the CHE emissions occur at the container terminals. The other terminal type is for the chassis yards that are within the Port and have cargo handling equipment.

Table 4.1: 2022 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	5.8	0.0	12.5	1.1	3,453
Container	9.1	8.3	7.6	239.0	1.5	1,123.4	37.6	126,575
Cruise	0.0	0.0	0.0	0.2	0.0	2.7	0.0	127
Dry Bulk	0.0	0.0	0.0	0.2	0.0	1.0	0.0	201
Liquid	0.0	0.0	0.0	0.5	0.0	1.2	0.1	40
Other	0.1	0.1	0.1	2.5	0.0	9.8	0.8	2,643
Total	**9.5**	**8.7**	**8.0**	**248.3**	**1.6**	**1,150.7**	**39.7**	**133,039**

Table 4.2 presents the CHE emissions by equipment and engine type. Emissions from rail car movers are included under the miscellaneous diesel category.

Table 4.2: 2022 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	0.6	0.0	1.0	0.1	86
Crane	Diesel	0.0	0.0	0.0	0.0	0.0	0.1	0.0	12
Excavator	Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Forklift	Diesel	0.1	0.1	0.1	6.5	0.0	8.6	0.8	1,666
Forklift	Gasoline	0.0	0.0	0.0	0.1	0.0	5.1	0.0	186
Forklift	Propane	0.0	0.0	0.0	1.8	0.0	12.4	0.6	375
Loader	Diesel	0.2	0.2	0.2	4.1	0.0	7.2	1.0	3,346
Man lift	Diesel	0.0	0.0	0.0	0.2	0.0	0.3	0.0	41
Man lift	Gasoline	0.0	0.0	0.0	0.0	0.0	0.1	0.0	3
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	0.4	0.0	0.4	0.1	187
RTG crane	Diesel	0.7	0.7	0.7	49.1	0.1	21.3	4.6	9,075
Side handler	Diesel	0.0	0.0	0.0	0.2	0.0	0.0	0.0	18
Skid steer loader	Diesel	0.0	0.0	0.0	0.1	0.0	0.1	0.0	23
Sweeper	Diesel	0.1	0.1	0.1	1.5	0.0	1.0	0.2	438
Sweeper	Propane	0.0	0.0	0.0	0.0	0.0	0.1	0.0	14
Top handler	Diesel	3.7	3.4	3.7	93.3	0.5	105.1	18.9	47,694
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	0.1	0.0	2.0	0.0	44
Truck	Diesel	0.2	0.2	0.2	5.2	0.0	2.7	0.6	1,258
Yard tractor	Diesel	2.9	2.7	2.9	76.5	0.7	166.5	12.0	51,908
Yard tractor	Gasoline	1.5	1.3	0.0	8.5	0.2	816.5	0.7	16,657
Total		**9.5**	**8.7**	**8.0**	**248.3**	**1.6**	**1,150.7**	**39.7**	**133,039**

Operational Profiles

Table 4.3 is a summary of all the CHE engines by fuel type, including electric equipment. In 2022, the electric equipment counts continued to increase (see Table 4.4). Of note, there are 9 electric RTG cranes at the Port. Zero emissions equipment demonstrated at terminals at any given time are not included in the inventory equipment counts.

Table 4.3: 2022 CHE Engines by Fuel Type

Equipment	Electric	Propane	Gasoline	Diesel	Total
Forklift	10	80	25	108	223
RTG crane	9	0	0	64	73
Side handler	0	0	0	5	5
Top handler	2	0	0	201	203
Yard tractor	1	0	136	509	646
Sweeper	2	7	0	13	22
Other	262	7	2	64	335
Total	**286**	**94**	**163**	**964**	**1,507**
Percent of Total	**19%**	**6%**	**11%**	**64%**	

Table 4.4: 2022 Electric Equipment Count

Equipment	2022 Electric Count
Automated guided vehicle	102
Automatic stacking crane	69
Cone Vehicles	3
Crane	7
Forklift	10
Man Lift	1
RTG crane	9
Ship to shore crane	75
Sweeper	2
Top handler	2
Truck	5
Yard tractor	1
Total	**286**

Table 4.5 summarizes the characteristics of fossil fueled (i.e. diesel, gasoline, and propane) CHE data collected for the 2022 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.

Table 4.5: 2022 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	1,048	2,233	1,733
Crane	Diesel	3	173	450	319	1985	2020	2007	0	267	91
Excavator	Diesel	1	na	na	na	2016	2016	2016	0	0	0
Forklift	Diesel	108	43	382	171	1995	2021	2014	2	5,913	543
Hybrid RTG crane	Diesel	29	133	250	201	2016	2021	2018	0	3,277	2,145
Loader	Diesel	15	96	560	365	1985	2021	2015	70	3,143	1,750
Man Lift	Diesel	15	48	100	73	2000	2021	2014	0	411	136
Miscellaneous	Diesel	1	13	13	13	2010	2010	2010	1,678	1,678	1,678
Rail pusher	Diesel	4	150	260	200	2013	2019	2015	289	1,260	801
RTG crane	Diesel	35	503	615	543	1998	2021	2010	1,402	4,961	3,512
Side handler	Diesel	5	205	205	205	2002	2015	2009	0	210	53
Skid steer loader	Diesel	3	67	73	70	2011	2020	2015	200	500	347
Sweeper	Diesel	13	34	300	185	2002	2020	2014	0	1,274	464
Top handler	Diesel	201	250	388	348	2000	2021	2014	4	4,015	2,025
Tractor	Diesel	1	59	59	59	2009	2009	2009	80	80	80
Truck	Diesel	16	177	545	350	2006	2020	2011	0	2,434	892
Yard tractor	Diesel	509	164	250	215	2007	2022	2014	0	5,078	2,139
Forklift	Gasoline	25	59	72	64	2002	2022	2013	0	1,138	505
Man Lift	Gasoline	2	82	82	82	2000	2004	2002	0	87	44
Yard tractor	Gasoline	136	335	335	335	2011	2020	2015	0	3,040	1,267
Forklift	Propane	80	42	141	75	1987	2018	2007	0	1,848	300
Sweeper	Propane	7	47	114	65	2004	2016	2012	18	163	56
Tractor	Propane	7	57	101	95	1996	1997	1996	0	220	181
Total		**1,221**									

Table 4.6 is a summary of the emission reduction technologies[8] 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 2022, five container terminals had diesel equipment using renewable diesel which doubled the equipment count using it from 2021 when it was first introduced.

Table 4.6: 2022 CHE Emission Reduction Technologies by Equipment Type

Equipment	Hybrid Equipment	On-Road Engines	ULSD Fuel	Renewable Diesel	DPF Retrofit	BlueCAT Retrofit
Forklift	0	0	75	33	14	16
RTG crane	29	0	34	30	12	0
Side handler	0	0	2	3	3	0
Top handler	0	0	79	122	33	0
Yard tractor	0	245	211	298	0	0
Sweeper	0	0	9	4	0	0
Other	0	4	44	20	2	7
Total	**29**	**249**	**454**	**510**	**64**	**23**

Table 4.7 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 4.7: 2022 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	2	0	0	0	0	1	265	241	509
Forklift	13	3	3	10	4	13	62	0	108
Top handler	33	0	1	23	6	60	78	0	201
Other	19	2	0	0	4	7	28	4	64
RTG crane	0	0	11	2	0	13	38	0	64
Side handler	2	0	1	0	2	0	0	0	5
Sweeper	4	0	1	1	1	0	6	0	13
Total	**73**	**5**	**17**	**36**	**17**	**94**	**477**	**245**	**964**
Percent of Total	**8%**	**1%**	**2%**	**4%**	**2%**	**10%**	**49%**	**25%**	

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

Table 4.8 summarizes the energy consumption (kWh) for all of the 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 2022, 84% of the energy consumed was by equipment with Tier 4i, Tier 4f, and on-road engines.

Table 4.8: 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	3,233,485	2%
Diesel	Tier 2	4,164,583	2%
Diesel	Tier 3	2,166,705	1%
Diesel	Tier 4i	25,378,687	15%
Diesel	Tier 4f	80,526,647	47%
Diesel	Onroad	37,943,061	22%
Gasoline		16,982,124	10%
Propane		479,256	0.28%
Total		**170,906,171**	**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 2022 emissions from rail locomotives follows the methodology as described in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

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)[9] line-haul fleet compliance data

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 2022, 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 4.

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%**

[9] *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.

Emission Estimates

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

Table 5.2: 2022 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	19.5	0.0	7.9	1.1	2,648
Line Haul	5.1	4.7	5.1	132.8	0.1	31.4	7.6	10,981
On-Port Subtotal	5.3	4.8	5.3	152.3	0.1	39.3	8.7	13,630
Off-Port (Regional) Emissions								
Switching	0.1	0.1	0.1	4.2	0.0	0.7	0.3	232
Line Haul	13.4	12.3	13.4	351.1	0.3	82.9	20.1	29,025
Off-Port Subtotal	13.5	12.4	13.5	355.3	0.3	83.6	20.3	29,257
Total	**18.8**	**17.2**	**18.8**	**507.6**	**0.5**	**122.9**	**29.1**	**42,886**

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 4.

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 5.56 g/bhp-hr.[10] The 2021 reports were used instead of 2022 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.

[10]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 2021.

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	722	1,256	0.6%	26.0	0.15
Tier 0	70	5,022	2.3%	10.5	0.25
Tier 1	1,331	69,781	32%	6.1	1.98
Tier 2	1,643	72,028	33%	4.6	1.54
Tier 3	1,228	52,785	25%	3.8	0.93
Tier 4	264	14,339	6.7%	1.2	0.08
ULEL	0	0	0%	-	-
Total BNSF	**5,258**	**215,211**	**100%**		**4.93**
UP					
Pre-Tier 0	25	202	0.1%	18.6	0.02
Tier 0	543	17,444	9%	8.4	0.79
Tier 1	1,782	74,890	40%	7.1	2.87
Tier 2	1,391	50,743	27%	5.2	1.42
Tier 3	969	30,320	16%	4.9	0.80
Tier 4	247	11,952	6.4%	1.1	0.07
ULEL	0	0	0%		0.00
Total UP	**4,957**	**185,551**	**100%**		**5.97**
		ULEL Credit Used			0.50
		UP Fleet Average			**5.47**
Both railroads, excluding ULELs and ULEL credits					
Pre-Tier 0	747	1,458	0%	25.0	0.09
Tier 0	613	22,466	6%	8.9	0.50
Tier 1	3,113	144,671	36%	6.6	2.39
Tier 2	3,034	122,771	31%	4.8	1.49
Tier 3	2,197	83,105	21%	4.2	0.87
Tier 4	511	26,291	6.56%	1.2	0.076
Total both	**10,215**	**400,762**	**100%**		**5.42**

Emission factors for particulate matter (PM_{10}), HC, and CO were calculated using the tier-specific emission rates for those pollutants published by USEPA[11] 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	CO	PM_{10}	HC	CO
			g/bhp-hr			g/bhp-hr		
Pre-Tier 0	1,458	0%	0.32	0.48	1.28	0.001	0.00	0.01
Tier 0	22,466	6%	0.32	0.48	1.28	0.018	0.03	0.07
Tier 1	144,671	36%	0.32	0.47	1.28	0.116	0.17	0.46
Tier 2	122,771	31%	0.18	0.26	1.28	0.055	0.08	0.39
Tier 3	83,105	21%	0.08	0.13	1.28	0.017	0.03	0.27
Tier 4	26,291	7%	0.015	0.04	1.28	0.000	0.00	0.08
Totals	**400,762**	**100%**				**0.207**	**0.31**	**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	0.207	0.190	0.207	5.42	0.005	1.28	0.31	489	0.013	0.040

[11]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 2022 is summarized in Table 5.6.

Table 5.6: 2022 Estimated On-Port Line Haul Locomotive Activity

Activity Measure	Inbound	Outbound	Total
Trains per Year	2,180	1,775	3,955
Locomotives per Train	3	3	N/A
Hours on Port per Trip	1	2.5	N/A
Locomotive Hours per Year	6,540	13,313	19,853

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 0.963 gallons per thousand gross ton-miles.[12] 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: 2022 Gross Ton-Mile, Fuel Use, and Horsepower-hour Estimate

	Distance miles	Trains per year	MMGT per year	MMGT-miles per year
Alameda Corridor	21	3,770	28	588
Central LA to Air Basin Boundar	84	3,770	28	2,352
Million gross ton-miles				**2,940**
Estimated gallons of fuel (millions)				**2.83**
Estimated million horsepower-hours				**58.9**

[12] Union Pacific, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2022,* and BNSF, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2022, 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, particularly containerized 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 of trucks that service the Port's terminals are diesel-fueled vehicles. Alternatively fueled trucks, primarily those fueled by liquefied natural gas (LNG) also service the SPBP. The emission estimates prepared using this methodology reflect the use of both types of fuel. In addition, approximately 0.25% of the trucks were zero emissions trucks in 2022 and included battery electric and hydrogen fuel cell trucks.

Emissions Estimation Methodology

The methodology used to estimate 2022 emissions from HDVs is described in Section 6 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. 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 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: 2022 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	5,213,355	0.1	0.1	0.1	182	0.4	199.9	23.9	49,424
On-Road	223,425,938	4.7	4.5	4.7	543	3.4	123.3	16.3	356,877
Total	**228,639,293**	**4.8**	**4.6**	**4.8**	**725**	**3.8**	**323.2**	**40.2**	**406,301**

Table 6.2: 2022 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	5,085,358	0.1	0.1	0.1	176	0.4	193.0	23.1	47,842
On-Road	194,267,553	4.0	3.9	4.0	473	3.0	107.6	14.2	310,449
Total	**199,352,910**	**4.2**	**4.0**	**4.2**	**649**	**3.4**	**300.6**	**37.3**	**358,291**

Table 6.3: 2022 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	127,998	0.004	0.004	0.003	6	0.014	6.9	0.8	1,582
On-Road	29,158,385	0.6	0.6	0.6	70	0.4	15.7	2.1	46,428
Total	**29,286,383**	**0.6**	**0.6**	**0.6**	**76**	**0.5**	**22.6**	**2.9**	**48,010**

Operational Profiles

To estimate the 2022 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 PDTR. The distribution of the model years of the trucks that called at the SPBP terminals during 2022 is presented in Figure 6.1. The call weighted average age of the trucks in 2022 was approximately 7 years.

Figure 6.1: 2022 Model Year Distribution of HDV Fleet

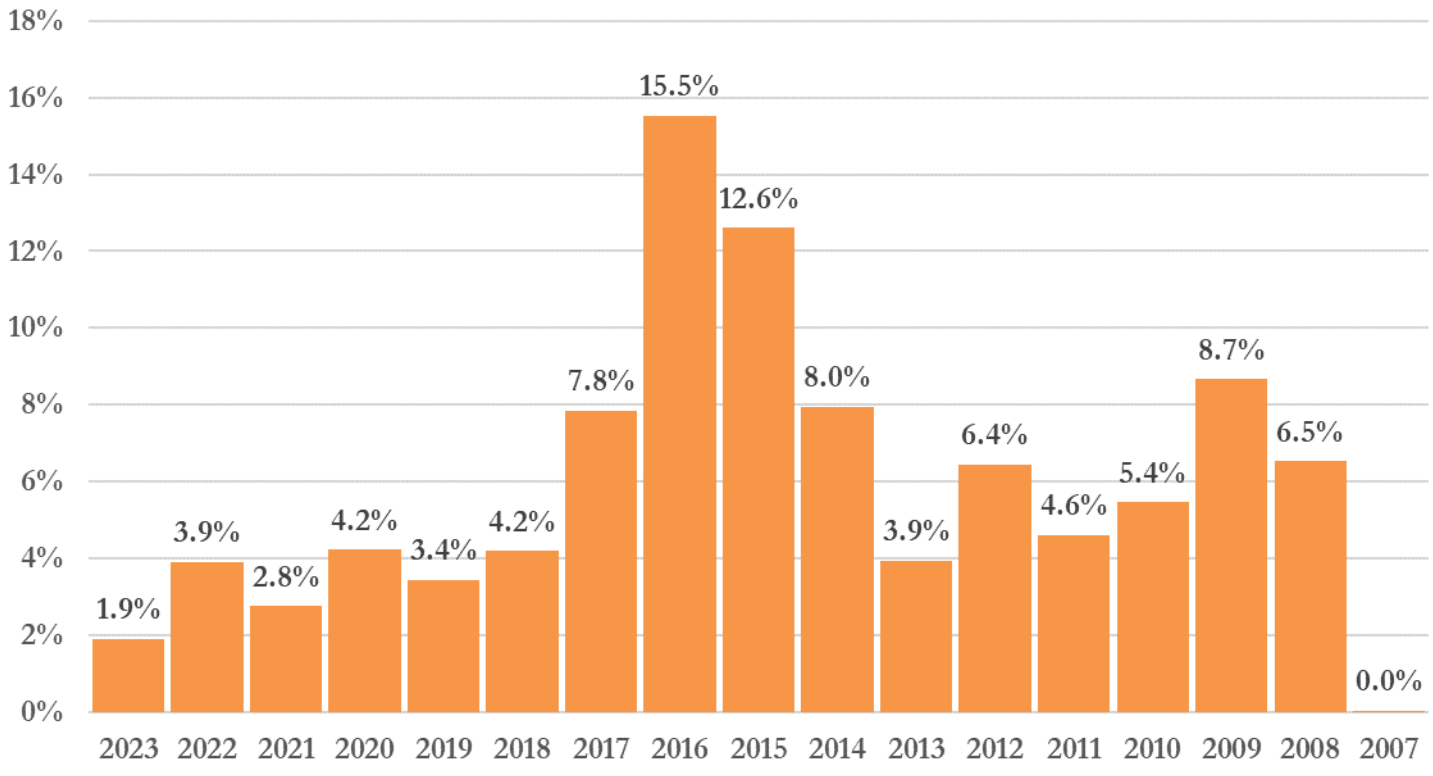


Table 6.4 shows the range and average of reported operating characteristics of on-terminal truck activities at Port container terminals, including speed, distance driven, and total time on terminal including terminal entry queuing. Table 6.5 shows the same summary data for non-container terminals and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

Table 6.4: 2022 Summary of Reported Container Terminal Operating Characteristics

	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	15	3.5	1.70
Minimum	7	0.5	0.61
Average	10	1.4	1.17

Table 6.5: 2022 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 2022, a total 3,984,102 truck calls were associated with container terminals and 559,365 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 2022, totaling approximately 351,000 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: 2022 Estimated On-Terminal VMT and Idling Hours by Terminal

Terminal Type	Total Miles Traveled	Total Hours Idling (all trips)
Container	2,077,023	753,662
Container	1,090,386	684,520
Container	680,669	1,542,849
Container	467,315	570,124
Container	447,917	194,097
Container	322,049	1,056,321
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	80,083	150,557
Other	4,455	3,787
Other	534	1,512
Total	**5,213,355**	**4,977,545**

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, based on evaluation of the Port's Clean Truck Program (CTP) activity records and the Port Drayage Truck Registry (PDTR).

Table 6.7: 2022 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		0.0066	0.0063	0.0038	24.0412	0.0523	33.5075	3.7761	6,284	0.9171	1.3273	g/hr
> 0	5	0.0217	0.0207	0.0213	11.0965	0.0311	3.4593	0.7537	3,517	0.5649	0.5202	g/mi
5	10	0.0193	0.0185	0.0189	8.5158	0.0267	2.7558	0.5350	3,011	0.4830	0.3437	g/mi
10	15	0.0164	0.0156	0.0161	6.0915	0.0220	2.0255	0.3387	2,467	0.3951	0.2040	g/mi
15	20	0.0145	0.0139	0.0143	4.8543	0.0193	1.5824	0.2399	2,156	0.3451	0.1443	g/mi
20	25	0.0134	0.0128	0.0132	4.0270	0.0175	1.2743	0.1808	1,955	0.3127	0.1112	g/mi
25	30	0.0132	0.0126	0.0130	3.3676	0.0162	1.0306	0.1404	1,802	0.2881	0.0901	g/mi
30	35	0.0137	0.0131	0.0136	2.8550	0.0152	0.8339	0.1112	1,684	0.2691	0.0755	g/mi
35	40	0.0149	0.0143	0.0148	2.4811	0.0144	0.6786	0.0899	1,597	0.2552	0.0649	g/mi
40	45	0.0169	0.0161	0.0168	2.2396	0.0139	0.5604	0.0743	1,541	0.2461	0.0568	g/mi
45	50	0.0195	0.0187	0.0195	2.1291	0.0137	0.4761	0.0630	1,513	0.2415	0.0506	g/mi
50	55	0.0229	0.0219	0.0228	2.1482	0.0137	0.4234	0.0550	1,514	0.2414	0.0455	g/mi
55	60	0.0271	0.0259	0.0270	2.3159	0.0141	0.4155	0.0541	1,550	0.2471	0.0455	g/mi
60	65	0.0320	0.0306	0.0319	2.6248	0.0147	0.4211	0.0560	1,617	0.2576	0.0456	g/mi
65	70	0.0320	0.0306	0.0319	2.6368	0.0147	0.4213	0.0561	1,617	0.2576	0.0456	g/mi

SECTION 7 SUMMARY OF 2022 EMISSION RESULTS

The Port of Long Beach 2022 Air Emissions Inventory results are presented in this section. Table 7.1 summarizes the 2022 air emissions associated with the goods movement-related sources at the Port, by category.

Table 7.1: 2022 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	85	78	45	3,738	185	345	146	349,871
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	10	9	8	248	2	1,151	40	133,039
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**125**	**115**	**84**	**5,535**	**192**	**2,002**	**268**	**966,768**

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 emissions. HDV are the highest source of CO_2e emissions and second highest source of NO_x emissions.

Table 7.2: 2022 Emissions Percent Contributions by Source Category

Source Category	DPM		NO_x		SO_x		CO_2e	
	tons	%	tons	%	tons	%	MT	%
Ocean going vessels	45	54%	3,738	68%	185	96.7%	349,871	36%
Harbor craft	7	8%	317	6%	0	0.2%	34,671	4%
Cargo handling equipment	8	10%	248	4%	2	0.8%	133,039	14%
Rail locomotives	19	22%	508	9%	0	0.2%	42,886	4%
Heavy-duty vehicles	5	6%	725	13%	4	2.0%	406,301	42%
Total	**84**	**100%**	**5,535**	**100%**	**192**	**100.0%**	**966,768**	**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: 2022 PM_{10} Emissions in the South Coast Air Basin, %

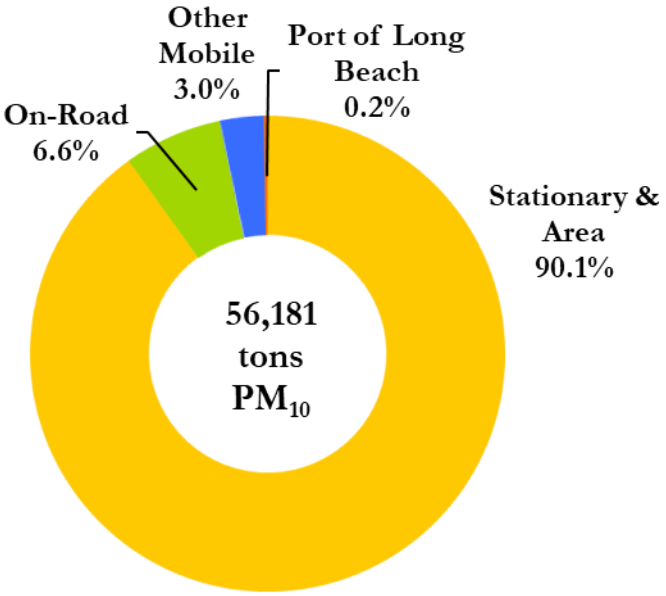


Figure 7.2: 2022 $PM_{2.5}$ Emissions in the South Coast Air Basin, %

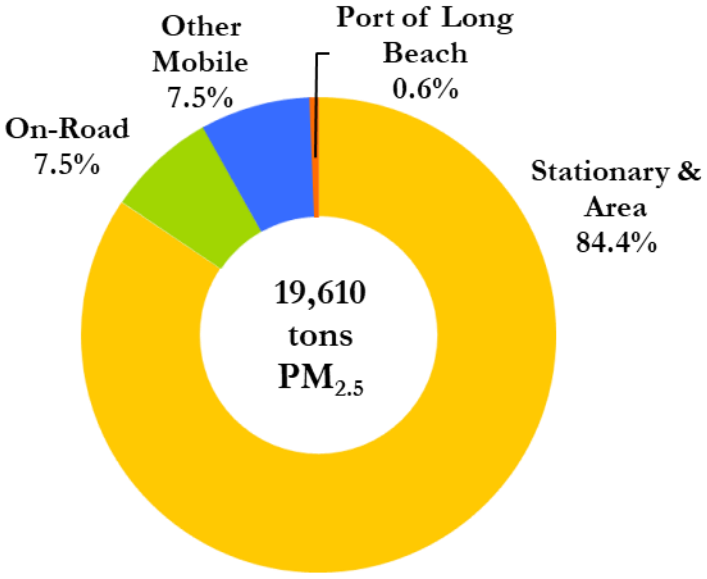


Figure 7.3: 2022 DPM Emissions in the South Coast Air Basin, %

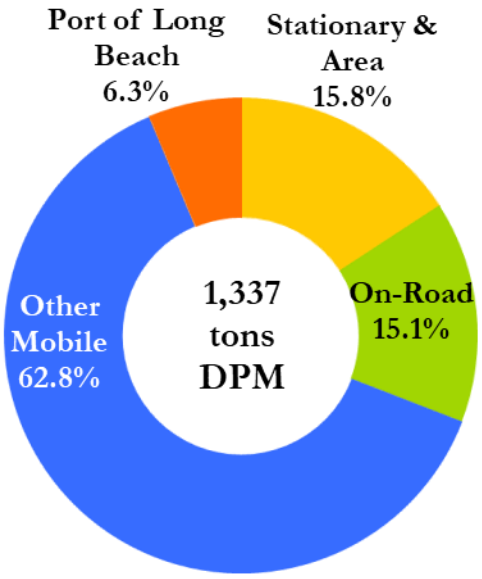


Figure 7.4: 2022 NO_x Emissions in the South Coast Air Basin, %

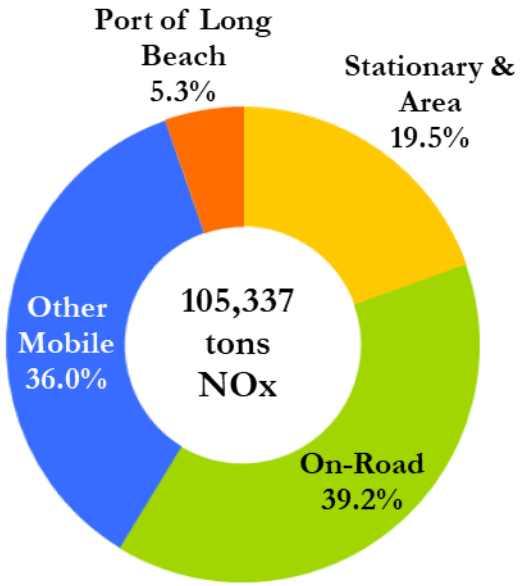
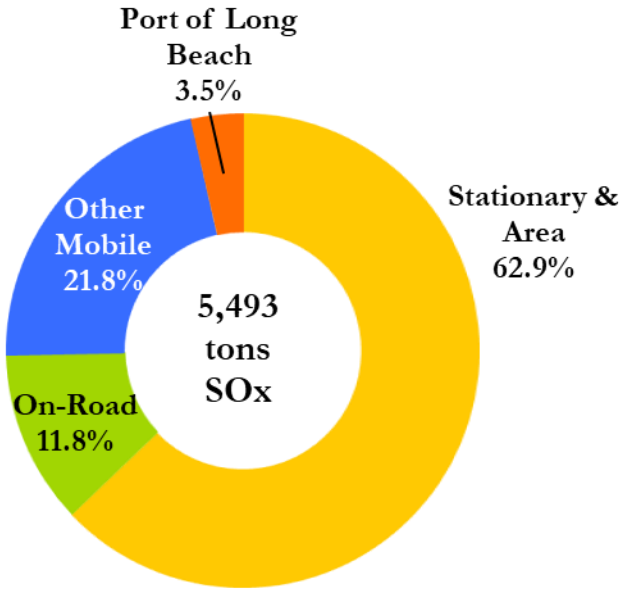


Figure 7.5: 2022 SO_x Emissions in the South Coast Air Basin, %



Tables 7.3 through 7.8 list the percent emissions contribution. The 2022 SoCAB emissions are based on the 2022 AQMP Appendix III[13], except for the SoCAB on-road emission estimates which were updated to take into consideration EMFAC2021[14]. 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.

[13]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.*
[14]ARB, *www.arb.ca.gov/emfac/*

Table 7.3: 2022 PM_{10} Emissions Contribution, tons and %

Category	Subcategory	PM_{10}	Percent PM_{10} Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	2	2%	2%	0.0%
OGV	Bulk vessel	6	7%	4%	0.0%
OGV	Containership	30	35%	24%	0.1%
OGV	Cruise	6	7%	4%	0.0%
OGV	General cargo	1	1%	1%	0.0%
OGV	RoRo	1	2%	1%	0.0%
OGV	Tanker	39	46%	32%	0.1%
OGV	**Subtotal**	**85**	**100%**	**68%**	**0.2%**
Harbor Craft	Assist tug	2	25%	1%	0.0%
Harbor Craft	ATB	0	4%	0%	0.0%
Harbor Craft	Barge	0	0%	0%	0.0%
Harbor Craft	Harbor tug	1	15%	1%	0.0%
Harbor Craft	Ferry	2	23%	1%	0.0%
Harbor Craft	Ocean tugboat	1	14%	1%	0.0%
Harbor Craft	Government	0	3%	0%	0.0%
Harbor Craft	Excursion	0	4%	0%	0.0%
Harbor Craft	Crewboat	1	10%	1%	0.0%
Harbor Craft	Work boat	0	1%	0%	0.0%
Harbor Craft	**Subtotal**	**7**	**100%**	**5%**	**0.0%**
CHE	RTG crane	1	8%	1%	0.0%
CHE	Forklift	0	2%	0%	0.0%
CHE	Top handler, side pick	4	39%	3%	0.0%
CHE	Other	1	6%	0%	0.0%
CHE	Yard tractor	4	46%	4%	0.0%
CHE	**Subtotal**	**10**	**100%**	**8%**	**0.0%**
Locomotives	Switching	0	2%	0%	0.0%
Locomotives	Line haul	18	98%	15%	0.0%
Locomotives	**Subtotal**	**19**	**100%**	**15%**	**0.0%**
HDV	On-Terminal	0.1	3%	0%	0.0%
HDV	On-road	4.7	97%	4%	0.0%
HDV	**Subtotal**	**5**	**100%**	**4%**	**0.0%**
Port	**Total**	**125**		**100%**	**0.2%**
SoCAB AQMP	**Total**	**56,181**			

Table 7.4: 2022 $PM_{2.5}$ Emissions Contribution, tons and %

Category	Subcategory	$PM_{2.5}$	Percent $PM_{2.5}$ Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	2	2%	2%	0.01%
OGV	Bulk vessel	5	7%	4%	0.03%
OGV	Containership	28	35%	24%	0.14%
OGV	Cruise	5	7%	4%	0.03%
OGV	General cargo	1	1%	1%	0.00%
OGV	RoRo	1	2%	1%	0.01%
OGV	Tanker	36	46%	32%	0.19%
OGV	**Subtotal**	**78**	**100%**	**68%**	**0.40%**
Harbor Craft	Assist tug	2	25%	1%	0.01%
Harbor Craft	ATB	0	4%	0%	0.00%
Harbor Craft	Barge	0	0%	0%	0.00%
Harbor Craft	Harbor tug	1	16%	1%	0.01%
Harbor Craft	Ferry	1	23%	1%	0.01%
Harbor Craft	Ocean tugboat	1	14%	1%	0.00%
Harbor Craft	Government	0	3%	0%	0.00%
Harbor Craft	Excursion	0	4%	0%	0.00%
Harbor Craft	Crewboat	1	10%	1%	0.00%
Harbor Craft	Work boat	0	1%	0%	0.00%
Harbor Craft	**Subtotal**	**6**	**100%**	**6%**	**0.03%**
CHE	RTG crane	1	8%	1%	0.00%
CHE	Forklift	0	2%	0%	0.00%
CHE	Top handler, side pick	3	39%	3%	0.02%
CHE	Other	1	6%	0%	0.00%
CHE	Yard tractor	4	46%	3%	0.02%
CHE	**Subtotal**	**9**	**100%**	**8%**	**0.04%**
Locomotives	Switching	0	2%	0%	0.00%
Locomotives	Line haul	17	98%	15%	0.09%
Locomotives	**Subtotal**	**17**	**100%**	**15%**	**0.09%**
HDV	On-Terminal	0.1	3%	0%	0.00%
HDV	On-road	4.5	97%	4%	0.02%
HDV	**Subtotal**	**5**	**100%**	**4%**	**0.02%**
Port	**Total**	**115**		**100%**	**0.6%**
SoCAB AQMP	**Total**	**19,610**			

Table 7.5: 2022 DPM Emissions Contribution, tons and %

Category	Subcategory	DPM	Percent DPM Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	2	4%	2%	0.1%
OGV	Bulk vessel	4	9%	5%	0.3%
OGV	Containership	18	39%	21%	1.3%
OGV	Cruise	5	11%	6%	0.4%
OGV	General cargo	1	2%	1%	0.1%
OGV	RoRo	0	1%	0%	0.0%
OGV	Tanker	16	34%	19%	1.2%
OGV	**Subtotal**	**45**	**100%**	**54%**	**3.4%**
Harbor Craft	Assist tug	2	25%	2%	0.1%
Harbor Craft	ATB	0	4%	0%	0.0%
Harbor Craft	Barge	0	0%	0%	0.0%
Harbor Craft	Harbor tug	1	16%	1%	0.1%
Harbor Craft	Ferry	2	23%	2%	0.1%
Harbor Craft	Ocean tugboat	1	14%	1%	0.1%
Harbor Craft	Government	0	3%	0%	0.0%
Harbor Craft	Excursion	0	4%	0%	0.0%
Harbor Craft	Crewboat	1	10%	1%	0.1%
Harbor Craft	Work boat	0	1%	0%	0.0%
Harbor Craft	**Subtotal**	**7**	**100%**	**8%**	**0.5%**
CHE	RTG crane	1	9%	1%	0.1%
CHE	Forklift	0	2%	0%	0.0%
CHE	Top handler, side pick	4	46%	4%	0.3%
CHE	Other	1	7%	1%	0.0%
CHE	Yard tractor	3	36%	3%	0.2%
CHE	**Subtotal**	**8**	**100%**	**10%**	**0.6%**
Locomotives	Switching	0	2%	0%	0.0%
Locomotives	Line haul	18	98%	22%	1.4%
Locomotives	**Subtotal**	**19**	**100%**	**22%**	**1.4%**
HDV	On-Terminal	0.1	3%	0%	0.0%
HDV	On-road	4.7	97%	6%	0.3%
HDV	**Subtotal**	**5**	**100%**	**6%**	**0.4%**
Port	**Total**	**84**		**100%**	**6.3%**
SoCAB AQMP	**Total**	**1,337**			

Table 7.6: 2022 NO_x Emissions Contribution, tons and %

Category	Subcategory	NO_x	Percent NO_x Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	128	3%	2%	0.1%
OGV	Bulk vessel	310	8%	6%	0.3%
OGV	Containership	1,616	43%	29%	1.5%
OGV	Cruise	347	9%	6%	0.3%
OGV	General cargo	51	1%	1%	0.0%
OGV	RoRo	34	1%	1%	0.0%
OGV	Tanker	1,251	33%	23%	1.2%
OGV	**Subtotal**	**3,738**	**100%**	**68%**	**3.5%**
Harbor Craft	Assist tug	82	26%	1%	0.1%
Harbor Craft	ATB	5	2%	0%	0.0%
Harbor Craft	Barge	0	0%	0%	0.0%
Harbor Craft	Harbor tug	47	15%	1%	0.0%
Harbor Craft	Ferry	78	24%	1%	0.1%
Harbor Craft	Ocean tugboat	49	15%	1%	0.0%
Harbor Craft	Government	12	4%	0%	0.0%
Harbor Craft	Excursion	9	3%	0%	0.0%
Harbor Craft	Crewboat	31	10%	1%	0.0%
Harbor Craft	Work boat	2	1%	0%	0.0%
Harbor Craft	**Subtotal**	**317**	**100%**	**6%**	**0.3%**
CHE	RTG crane	49	20%	1%	0.0%
CHE	Forklift	8	3%	0%	0.0%
CHE	Top handler, side pick	93	38%	2%	0.1%
CHE	Other	12	5%	0%	0.0%
CHE	Yard tractor	85	34%	2%	0.1%
CHE	**Subtotal**	**248**	**100%**	**4%**	**0.2%**
Locomotives	Switching	24	5%	0%	0.0%
Locomotives	Line haul	484	95%	9%	0.5%
Locomotives	**Subtotal**	**508**	**100%**	**9%**	**0.5%**
HDV	On-Terminal	182	25%	3%	0.2%
HDV	On-road	543	75%	10%	0.5%
HDV	**Subtotal**	**725**	**100%**	**13%**	**0.7%**
Port	**Total**	**5,535**		**100%**	**5.3%**
SoCAB AQMP	**Total**	**105,337**			

Table 7.7: 2022 SO_x Emissions Contribution, tons and %

Category	Subcategory	SO_x	Percent SO_x Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	4	2%	2%	0%
OGV	Bulk vessel	13	7%	7%	0%
OGV	Containership	57	31%	30%	1%
OGV	Cruise	13	7%	7%	0%
OGV	General cargo	2	1%	1%	0%
OGV	RoRo	3	2%	2%	0%
OGV	Tanker	93	50%	48%	2%
OGV	**Subtotal**	**185**	**100%**	**96.7%**	**3%**
Harbor Craft	Assist tug	0.10	30%	0%	0%
Harbor Craft	ATB	0.00	1%	0%	0%
Harbor Craft	Barge	0.00	0%	0%	0%
Harbor Craft	Harbor tug	0.05	16%	0%	0%
Harbor Craft	Ferry	0.08	25%	0%	0%
Harbor Craft	Ocean tugboat	0.04	11%	0%	0%
Harbor Craft	Government	0.01	5%	0%	0%
Harbor Craft	Excursion	0.01	3%	0%	0%
Harbor Craft	Crewboat	0.03	9%	0%	0%
Harbor Craft	Work boat	0.00	1%	0%	0%
Harbor Craft	**Subtotal**	**0**	**100%**	**0%**	**0%**
CHE	RTG crane	0.1	7%	0%	0%
CHE	Forklift	0.0	1%	0%	0%
CHE	Top handler, side pick	0.5	34%	0%	0%
CHE	Other	0.1	4%	0%	0%
CHE	Yard tractor	0.9	54%	0%	0%
CHE	**Subtotal**	**2**	**100%**	**1%**	**0%**
Locomotives	Switching	0.0	6%	0%	0%
Locomotives	Line haul	0.4	94%	0%	0%
Locomotives	**Subtotal**	**0**	**100%**	**0%**	**0%**
HDV	On-Terminal	0.4	12%	0%	0%
HDV	On-road	3.4	88%	2%	0%
HDV	**Subtotal**	**4**	**100%**	**2%**	**0%**
Port	**Total**	**192**		**100%**	**3.5%**
SoCAB AQMP	**Total**	**5,493**			

Table 7.8: 2022 CO_2e Emissions Contribution, metric tons and %

Category	Subcategory	CO_2e	Percent Emissions of Total	
			Category	Port
OGV	Auto carrier	7,268	2%	1%
OGV	Bulk vessel	21,688	6%	2%
OGV	Containership	126,458	36%	13%
OGV	Cruise	19,352	6%	2%
OGV	General cargo	3,532	1%	0%
OGV	RoRo	5,902	2%	1%
OGV	Tanker	165,670	47%	17%
OGV	**Subtotal**	**349,871**	**100%**	**36%**
Harbor Craft	Assist tug	10,543	30%	1%
Harbor Craft	ATB	407	1%	0%
Harbor Craft	Barge	32	0%	0%
Harbor Craft	Harbor tug	5,412	16%	1%
Harbor Craft	Ferry	8,700	25%	1%
Harbor Craft	Ocean tugboat	3,796	11%	0%
Harbor Craft	Government	1,567	5%	0%
Harbor Craft	Excursion	929	3%	0%
Harbor Craft	Crewboat	3,002	9%	0%
Harbor Craft	Work boat	283	1%	0%
Harbor Craft	**Subtotal**	**34,671**	**100%**	**4%**
CHE	RTG crane	9,075	7%	1%
CHE	Forklift	2,227	2%	0%
CHE	Top handler, side pick	47,711	36%	5%
CHE	Other	5,461	4%	1%
CHE	Yard tractor	68,565	52%	7%
CHE	**Subtotal**	**133,039**	**100%**	**14%**
Locomotives	Switching	2,880	7%	0%
Locomotives	Line haul	40,006	93%	4%
Locomotives	**Subtotal**	**42,886**	**100%**	**4%**
HDV	On-Terminal	49,424	12%	5%
HDV	On-road	356,848	88%	37%
HDV	**Subtotal**	**406,272**	**100%**	**42%**
Port	**Total**	**966,768**		**100%**

SECTION 8 COMPARISON OF 2022 AND 2005 FINDINGS AND EMISSION ESTIMATES

This section provides a comparison of the emission estimates for 2022 and 2005 by source category. The baseline year used to compare every annual inventory is 2005. The cargo handling emissions were updated to be consistent with CARB latest methodology.

Table 8.1: 2005-2022 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	866	693	595	6,655	6,848	531	234	386,935
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	**1,183**	**994**	**912**	**15,064**	**6,975**	**2,820**	**748**	**977,845**
2022								
Ocean-going vessels	85	78	45	3,738	185	345	146	349,871
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	10	9	8	248	2	1,151	40	133,039
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**125**	**115**	**84**	**5,535**	**192**	**2,002**	**268**	**966,768**
Change between 2005 and 2022 (percent)								
Ocean-going vessels	-90%	-89%	-92%	-44%	-97%	-35%	-37%	-10%
Harbor craft	-81%	-81%	-81%	-55%	-89%	-73%	-76%	-1%
Cargo handling equipment	-71%	-71%	-76%	-79%	-86%	217%	-47%	28%
Locomotives	-56%	-57%	-56%	-60%	-99%	-31%	-56%	-29%
Heavy-duty vehicles	-98%	-98%	-98%	-86%	-90%	-79%	-87%	4%
Total	**-89%**	**-88%**	**-91%**	**-63%**	**-97%**	**-29%**	**-64%**	**-1%**

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 2022. Compared to 2005, container throughput is up 36%, while overall containership arrivals to POLB are down 32%. The average number of containers per containership is 10,137 TEU per containership call in 2022, 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
2021	9,384,368	1,905	912	10,290
2022	9,133,657	2,068	901	10,137
CAAP Progress	**36%**	**-21%**	**-32%**	**101%**
Previous Year	**-3%**	**9%**	**-1%**	**-1%**

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 2021.

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	1,183	994	912	15,064	6,975	2,820	748	977,845
2021	170	157	116	7,686	252	2,154	355	1,148,248
2022	125	115	84	5,535	192	2,002	268	966,768
CAAP Progress	**-89%**	**-88%**	**-91%**	**-63%**	**-97%**	**-29%**	**-64%**	**-1%**
Previous Year	**-27%**	**-27%**	**-28%**	**-28%**	**-24%**	**-7%**	**-25%**	**-16%**

The following paragraphs summarize the overall reasons for the differences in 2005 and 2022 emissions by source category.

Ocean-Going Vessels

Emissions from OGVs were lower in 2022 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 OGV at-berth regulation. Emission reductions have also occurred due to increased vessel efficiency and utilization due to the deployment of larger container vessels that has resulted in fewer vessel calls.

Harbor Craft

Harbor craft emissions decreased for all pollutants. 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 2022, 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.

Cargo Handling Equipment

Cargo handling equipment emissions decreased for all pollutants, except for CO and CO_2e. 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. The increase in CO_2e is mainly due to the increase in energy consumption in 2022 as compared to 2005 and lack of any CO_2e emission standards. In 2022, several container terminals used renewable diesel, which lowered CO_2e tailpipe emissions.

Locomotives

Emissions from rail locomotives were lower in 2022 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 2022 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 2022, the share of mileage driven by 2014 and newer model year trucks increased to 64% 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 responsible 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. 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.

Emissions Comparison to Previous Year

Between 2021 and 2022, 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 2022 emissions to the previous year which shows the emission are lower in 2022 for all source categories. 2021 emissions for OGV are updated with revised auxiliary load for vessels at anchorage due to drifting that occurred in 2021.

Table 8.4: 2021-2022 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
2021								
Ocean-going vessels	124	114	71	5,475	246	512	216	510,391
Harbor craft	9	9	9	382	0	70	18	37,506
Cargo handling equipment	11	10	9	322	2	1,128	44	142,817
Locomotives	20	19	20	556	1	137	31	47,684
Heavy-duty vehicles	6	5	6	951	4	307	46	409,849
Total	**170**	**157**	**116**	**7,686**	**252**	**2,154**	**355**	**1,148,248**
2022								
Ocean-going vessels	85	78	45	3,738	185	345	146	349,871
Harbor craft	7	6	7	317	0	61	13	34,671
Cargo handling equipment	10	9	8	248	2	1,151	40	133,039
Locomotives	19	17	19	508	0	123	29	42,886
Heavy-duty vehicles	5	5	5	725	4	323	40	406,301
Total	**125**	**115**	**84**	**5,535**	**192**	**2,002**	**268**	**966,768**
Change between 2021 and 2022 (percent)								
Ocean-going vessels	-31%	-31%	-36%	-32%	-25%	-33%	-32%	-31%
Harbor craft	-28%	-27%	-28%	-17%	-7%	-13%	-28%	-8%
Cargo handling equipment	-13%	-13%	-14%	-23%	-6%	2%	-10%	-7%
Locomotives	-7%	-7%	-7%	-9%	-10%	-10%	-7%	-10%
Heavy-duty vehicles	-15%	-14%	-14%	-24%	-1%	5%	-13%	-1%
Total	**-27%**	**-27%**	**-28%**	**-28%**	**-24%**	**-7%**	**-25%**	**-16%**

In 2022, there were 9% more vessel calls than in 2021, but the shifts mainly from anchorage, were 29% lower and anchorage calls 24% lower in 2022.

Table 8.5: 2021-2022 Shift Calls Comparison

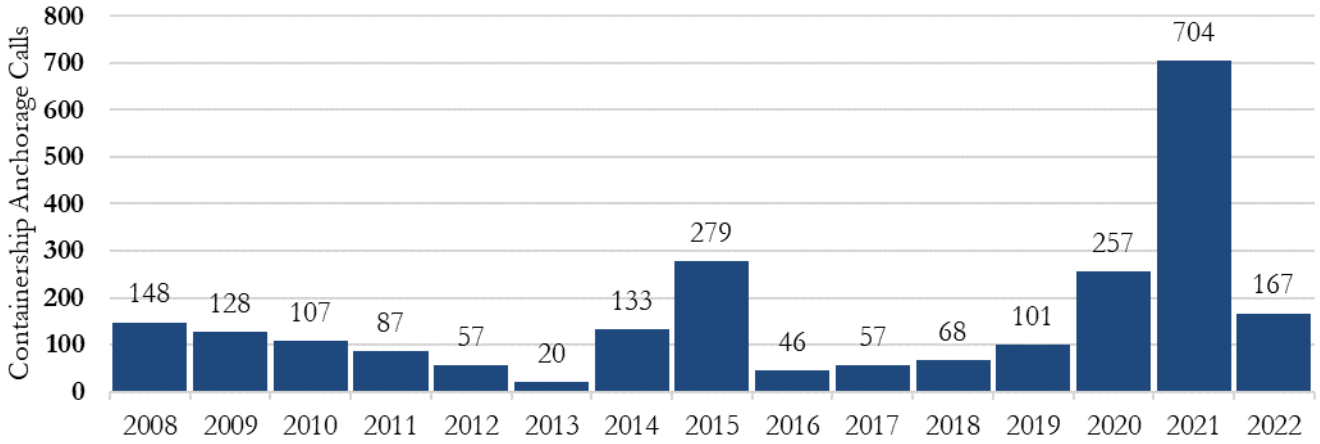
Vessel Type	2021 Shift	2022 Shift	2021-2022 Change
Containership	1,133	300	-74%
Tanker	810	953	18%
Cruise	14	1	-93%
Bulk Carrier	270	304	13%
Auto Carrier/RoRo	38	28	-26%
General cargo	32	37	16%
Total	**2,297**	**1,623**	**-29%**

Table 8.6: 2021-2022 Anchorage Calls Comparison

Vessel Type	2021 Anchorage	2022 Anchorage	2021-2022 Change
Containership	704	167	-76%
Tanker	561	690	23%
Cruise	12	1	-92%
Bulk Carrier	194	246	27%
Auto Carrier/RoRo	10	8	-20%
General cargo	20	26	30%
Total	**1,501**	**1,138**	**-24%**

Figure 8.1 shows anchorage calls trend for containerships and illustrates the significant decrease in containerships at anchorage in 2022. The lower shift and anchorage calls in 2022 attributed to the lower emissions for ocean going vessels.

Figure 8.1: Containership Anchorage Calls Trend



Calendar year 2022 saw a return to near normal port operations after two challenging years since the COVID-19 pandemic. Below are source category specific explanations for the emission changes when comparing 2022 to 2021:

- For OGVs, the total calls were higher by 9% in 2022, but there were significantly fewer vessels waiting for a berth assignment which resulted in lower shifts and anchorage calls. Vessel calls with propulsion engines that meet the Tier III NO_x emission standard continued to increase. Tier 3 engines are 75% cleaner than the Tier II engine standard. In 2022, several vessels called the Port using LNG as a primary fuel.

- For harbor craft, the vessel count and total energy consumed (kWh) were lower in 2022 compared to 2021.

- For CHE, the 2022 emissions are slightly lower than 2021 due to lower equipment activity which is in line with the TEU cargo decrease. In 2022, terminal operators continued to switch to renewable diesel which lowers the CO_2e tailpipe emissions.

- For locomotives, the slight decrease in emissions is due to reductions in the line haul fleet composite emission factors resulting from line haul fleet mix improvement.

- For heavy-duty vehicles, the PM and NO_x emissions decreased due to continued fleet turnover to newer trucks in 2022. The share of mileage driven by 2014 and newer model year trucks increased from 48% in 2021 to 64% in 2022, which is a significant milestone.

Ocean-Going Vessels

Overall energy consumption (in terms of kWh) by OGV emission sources in 2005, 2020, and 2021 are shown in Table 8.7. 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 2022, there were only seven calls that used a CAECS as there are no additional barges with alternative capture and control systems available.

Table 8.7: 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
2021	619,547,417	70,783,418	303,111,349	245,652,650
2022	425,044,190	72,788,600	171,560,833	180,694,757
CAAP Progress	**-16%**	**-51%**	**-25%**	**40%**
Previous Year	**-31%**	**3%**	**-43%**	**-26%**

Table 8.8 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 in Tier III vessels continued in 2022.

Table 8.8: 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%
2021	5%	49%	38%	4%	4%
2022	8%	45%	38%	5%	3%

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 2022 are listed in Table 8.9. The number of vessels utilizing shore power is slightly lower in 2022 than the previous year.

Table 8.9: 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%
2021	36%	94%	88%	47%	59%	58%
2022	35%	93%	88%	43%	58%	57%

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 8.10, compared to 2005, the harbor craft vessel count (including ATBs) operating at the Port in 2022 remained the same, and total engine count increased by 27%. There was an 1% increase in the overall energy consumption (kWh) from 2005 to 2022. Compared to previous year, the energy consumption in 2022 is 7% lower and the number of vessels decreased by 4%.

Table 8.10: Harbor Craft Count and Energy Consumption Comparison

Year	Vessel Count	Engine Count	Total kWh
2005	92	301	48,556,571
2021	96	406	52,760,806
2022	92	382	49,065,454
CAAP Progress	**0%**	**27%**	**1%**
Previous Year	**-4%**	**-6%**	**-7%**

Table 8.11 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. Over the years, with better data collection techniques and better record keeping required with grant funded repowers, the number of engines of unknown tier level has decreased significantly.

Table 8.11: Harbor Craft Engine Tier Change, %

	2005 Engine Count	2021 Engine Count	2022 Engine Count	2005-2022 % Change	2021-2022 % Change
Unknown	102	24	18	-82%	-25%
Tier 0	86	34	34	-60%	0%
Tier 1	102	19	16	-84%	-16%
Tier 2	11	148	116	955%	-22%
Tier 3	0	171	172	100%	1%
Tier 4	0	10	26	100%	160%
Total	**301**	**406**	**382**	**27%**	**-6%**

Table 8.12 compares the harbor craft energy consumption (kWh) by engine tier. In 2022, 90% of energy consumed by harbor craft is from Tier 2 to Tier 4 engines.

Table 8.12: Engine Energy and Activity Change, kWh and %

Engine Tier	2005 kWh	2005 % of Total	2021 kWh	2021 % of Total	2022 kWh	2022 % of Total
Tier 0	31,357,757	64.6%	3,113,001	5.9%	449,822	0.9%
Tier 1	16,937,667	34.9%	4,443,548	8.4%	4,226,339	8.6%
Tier 2	261,146	0.5%	23,450,610	44.4%	18,001,474	36.7%
Tier 3	0	0.0%	16,963,046	32.2%	18,352,782	37.4%
Tier 4	0	0.0%	4,790,600	9.1%	8,035,037	16.4%
Total	**48,556,571**	**100%**	**52,760,806**	**100%**	**49,065,454**	**100%**

Cargo Handling Equipment

In 2022, there is 20% more equipment and 35% more energy consumption for fossil-fueled equipment than in 2005. These increases are needed to accommodate the 36% increase in TEU throughput and operational changes at the Port over the years. The largest increase in equipment count is for electric equipment. In 2022, there are 286 pieces of electric equipment operating at the Port or 19% of the total CHE.

Table 8.13 shows the energy consumption (in kWh) from fossil-fueled equipment, but the equipment count includes electric equipment. Compared to the previous year, there was a 6% decrease in energy consumption. The overall equipment counts increased 3% due mainly to new electric equipment. As an example, 37 added electric equipment to the 2022 inventory is a 13% increase to the electric equipment count from the previous year.

Table 8.13: CHE Count and Energy Consumption Comparison

Year	Equipment Count	Activity (kWh)
2005	1,259	134,618,521
2021	1,462	181,323,340
2022	1,507	170,906,171
CAAP Progress	**20%**	**27%**
Previous Year	**3%**	**-6%**

Table 8.14 shows the equipment energy consumption (kWh) comparison for diesel fueled equipment by diesel engine tier and by non-diesel fueled equipment for calendar years 2022, 2021 and 2005. Among diesel equipment, 84% of the energy consumed in 2022, is from equipment with on-road engines and Tier 4 engines.

Table 8.14: CHE Energy Consumption Comparison by Engine Tier, kWh

Engine Type	Engine Tier	2005 kWh	2005 % of Total	2021 kWh	2021 % of Total	2022 kWh	2022 % of Total
Diesel	Tier 0	12,023,155	9%	34,294	0.02%	31,624	0.02%
Diesel	Tier 1	65,059,472	48%	7,955,909	4%	3,233,485	2%
Diesel	Tier 2	49,337,838	37%	5,366,862	3%	4,164,583	2%
Diesel	Tier 3	41,636	0.03%	2,588,189	1%	2,166,705	1%
Diesel	Tier 4i	0	0%	29,431,289	16%	25,378,687	15%
Diesel	Tier 4f	0	0%	76,189,083	42%	80,578,225	47%
Diesel	Onroad	6,610,773	5%	40,114,171	22%	37,899,056	22%
Gasoline		3,866	0.003%	19,147,622	11%	16,982,124	10%
Propane		1,541,782	1%	495,920	0%	479,256	0.3%
Total		**134,618,521**	**100%**	**181,323,340**	**100%**	**170,913,744**	**100%**

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

For Table 8.16, the reason for the lower percent of diesel equipment using ULSD is that roughly half of the diesel-powered equipment are using renewable diesel in 2022. The electric equipment count increase is due to the newly converted RTG cranes and new electric equipment purchases, such as automated guided vehicles (AGVs) at one terminal.

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
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%**
2021											
Forklift	0	0	17	94	14	108	0%	0%	16%	87%	13%
RTG crane	20	0	16	50	15	65	31%	0%	25%	77%	23%
Side handler	0	0	3	0	3	3	0%	0%	100%	0%	100%
Top handler	0	0	37	113	82	195	0%	0%	19%	58%	42%
Yard tractor	0	253	0	383	116	499	0%	51%	0%	77%	23%
Other	0	4	4	73	2	75	0%	5%	5%	97%	3%
Total	**20**	**257**	**77**	**713**	**232**	**945**	**2%**	**27%**	**8%**	**75%**	**25%**
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
2022					
AGV	102	0	0	0	102
Forklift	10	80	25	108	223
Wharf crane	75	0	0	0	75
RTG crane	0	0	0	64	64
ASC	69	0	0	0	69
Top handler	2	0	0	201	203
Yard tractor	1	0	136	509	646
Other	27	14	2	82	125
Total	**286**	**94**	**163**	**964**	**1,507**
	19%	**6%**	**11%**	**64%**	
2021					
AGV	72	0	0	0	72
Forklift	9	88	24	108	229
Wharf crane	77	0	0	0	77
RTG crane	0	0	0	65	65
ASC	69	0	0	0	69
Top handler	2	0	0	195	197
Yard tractor	0	2	138	499	639
Other	20	14	2	78	114
Total	**249**	**104**	**164**	**945**	**1,462**
	17%	**7%**	**11%**	**65%**	
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. In total, there is a 20% increase in equipment count from 2005 to 2022, with the largest increase for electric equipment, followed by top handlers. There is a significant decrease for side handlers as top handler counts increase. Electric equipment accounts for 19% of the total equipment at the Port in 2022. Compared to the previous year, the total equipment counts increased by 3% mainly due to more electric equipment.

Table 8.17: CHE Equipment Count

Equipment	2005	2021	2022
Forklift	295	220	213
RTG crane	85	65	64
Side handler	43	3	5
Top handler	113	195	201
Yard tractor	641	639	646
Sweeper	15	21	20
Electric	na	249	286
Other	67	70	72
Total	**1,259**	**1,462**	**1,507**

Table 8.18 shows the electric equipment count for 2022, previous year and 2005. In 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	2021 Electric	2022 Electric
AGV	0	72	102
ASC	0	69	69
Cone vehicle	0	3	3
Crane	0	7	7
Electric pallet jack	2	2	0
Forklift	3	9	10
Man Lift	0	0	1
RTG crane	0	0	9
Ship to shore crane	na	77	75
Sweeper	0	1	2
Top handler	0	2	2
Truck	0	6	5
Yard tractor	0	0	1
Total	**5**	**249**	**286**

Locomotives

Table 8.19 shows the various throughput comparisons for rail transportation in 2005 and 2022. The total port throughput between calendar years 2005 and 2022 was higher by 36% in 2022. The on-dock rail throughput was higher in 2022 than in 2005. The on-dock rail percent of total throughput increased from 16% to 18% between 2005 and 2022.

Table 8.19: Container Throughput Comparison, TEU and %

	2005	2021	2022	2005-2022 Change	2021-2022 Change
Total Port Throughput	6,709,818	9,384,368	9,133,657	36%	-3%
Total On-Dock Rail*	1,094,765	1,835,438	1,632,803	49%	-11%
% On-Dock	16%	20%	18%		

*Based on average of 1.8 TEUs per container

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 Port's Clean Trucks Program (CTP). As of 2018, newly registered trucks must be model year 2014 or newer. As of 2022, 64% of calls were made by trucks of model year 2014 and newer.
- 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 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, 2021 and 2022. The 2022 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 increased 5% as compared to the previous year and 29% since 2005. The increase in idling since 2005 may be due in part to the increase in TEU throughput, which resulted in more truck trips. Both the increase since 2005 and the recent increase since 2021 are partly due to improved and more accurate data sources. Continued improvement in data sources may provide more information regarding actual on-terminal idling times (as opposed to turn times).

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

EI Year	Total Idling Time (hours)
2005	3,854,273
2021	4,744,801
2022	4,977,545
CAAP Progress	**29%**
Previous Year	**5%**

Table 8.21 compares the vehicle miles traveled by heavy-duty trucks in 2005, 2021 and 2022. Reported on-terminal VMT in 2022 was higher than in 2005 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	2021 VMT	2022 VMT	2005-2022 Change	2021-2022 Change
On-Terminal	2,866,476	5,326,745	5,213,355	82%	-2%
On-Road	213,716,895	223,724,822	223,425,938	5%	0%
	216,583,371	**229,051,567**	**228,639,293**	**6%**	**0%**

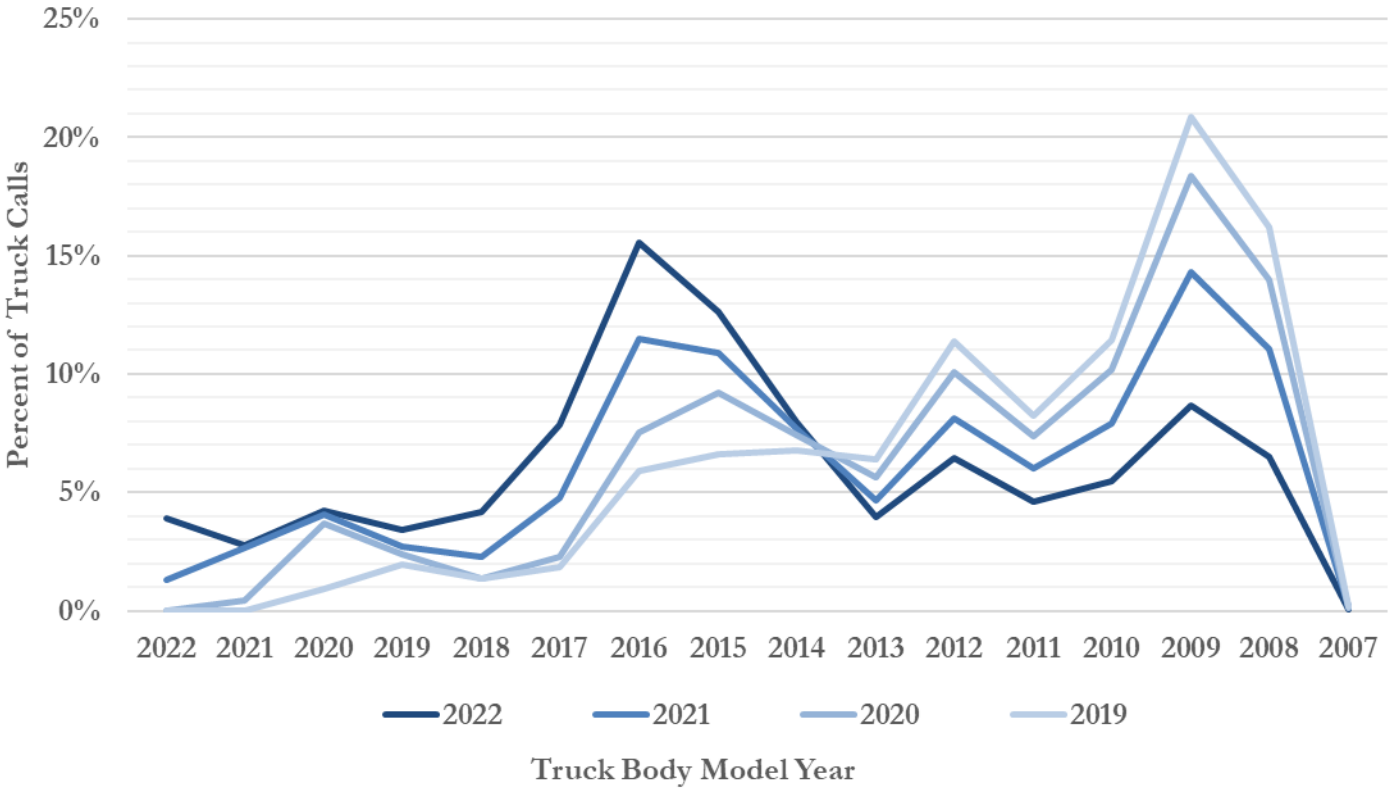
Table 8.22 presents the call-weighted age of the truck fleet. Compared to 2005, the average age of trucks visiting the Port has decreased from 11 to 7 years due to the Port's Clean Trucks Program launched in October 2008 requiring the progressive ban of pre-2007 trucks after 2008 and the most recent requirement that newly registered trucks, as of 2018, must be model year 2014 or newer.

Table 8.22: Call-Weighted HDV Age

Calendar Year	Call-Weighted Average Age (years)	Truck calls 2014 & newer (%)
2005	11.2	0%
2021	7.8	48%
2022	7.4	64%

Figure 8.2 illustrates the HDV model year distribution for calendar years 2019 to 2022. It shows model year 2016 trucks have become dominant for the first time replacing 2009 MY that was dominant in previous years but was declining in number.

Figure 8.2: 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 2022, previous year and 2005 in TEU. The TEU throughput in 2022 was the second highest in the Port's history.

Table 9.1: Container and Cargo Throughput and Change, %

Year	Throughput Container (TEU)
2005	6,709,818
2021	9,384,368
2022	9,133,657
CAAP Progress	**36%**
Previous Year	**-3%**

Tables 9.2 shows the port-wide tons of emissions per 10,000 TEU in 2005, 2021 and 2022. The tons of emissions per 10,000 TEU of cargo decreased, an improvement in 2022 from 2005 and 2021.

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	1.76	1.48	1.36	22.45	10.40	4.20	1.11	1,457
2021	0.18	0.17	0.12	8.19	0.27	2.30	0.38	1,224
2022	0.14	0.13	0.09	6.06	0.21	2.19	0.29	1,058
CAAP Progress	**-92%**	**-92%**	**-93%**	**-73%**	**-98%**	**-48%**	**-74%**	**-27%**
Previous Year	**-25%**	**-25%**	**-26%**	**-26%**	**-22%**	**-4%**	**-23%**	**-13%**

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 2022 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, 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. 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 2022 using the 2022 methodology. In 2022, the Port met and exceeded the CAAP 2023 DPM, NO_x, and SO_x emission reduction standards.

Table 10.1: 2005-2022 Emissions in tons and Reductions in % Compared to CAAP San Pedro Bay Emissions Reduction Standards

Category	2005	2022
DPM (tons)		
Ocean-going vessels	595	45
Harbor craft	36	7
Cargo handling equipment	33	8
Locomotives	43	19
Heavy-duty vehicles	205	5
Total	**912**	**84**
Cumulative DPM Emissions Reduction Achieved in 2022		**91%**
CAAP San Pedro Bay DPM Emissions Reduction Standards	**2023**	**77%**
NO_x (tons)		
Ocean-going vessels	6,655	3,738
Harbor craft	699	317
Cargo handling equipment	1,165	248
Locomotives	1,273	508
Heavy-duty vehicles	5,273	725
Total	**15,064**	**5,535**
Cumulative NO_x Emissions Reduction Achieved in 2022		**63%**
CAAP San Pedro Bay NO_x Emissions Reduction Standards	**2023**	**59%**
SO_x (tons)		
Ocean-going vessels	6,848	185
Harbor craft	3	0
Cargo handling equipment	11	2
Locomotives	76	0
Heavy-duty vehicles	37	4
Total	**6,975**	**192**
Cumulative SO_x Emissions Reduction Achieved in 2022		**97%**
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

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

This appendix summarizes the current regulatory initiatives and Port measures related to port activity that influenced calendar year 2022 emissions. Almost all goods movement-related emissions in and around the port come from five emission source categories: OGVs, HDVs, CHE, harbor craft, and locomotives. The responsibility for the regulation of emissions of most of these sources falls under the jurisdiction of local (South Coast Air Quality Management District [South Coast AQMD]), state (CARB), or federal (U.S. Environmental Protection Agency [EPA]) agencies.

Clean Air Action Plan (CAAP) Strategies

The CAAP 2017 Update[1] contains strategies from all sources that move cargo through the ports, including the deployment of zero and near-zero emission trucks and cargo handling equipment, and the expansion of programs that reduce ship emissions. The focus of the Update is to work in collaboration with industry stakeholders, regulatory agencies, local communities, and environmental groups to reduce emissions and combat climate change. The CAAP 2017 strategies that affect emission reductions for the Ports include:

- Advancing the Clean Trucks Program to phase out older trucks and transition to near-zero emissions in the early years and zero-emissions by 2035. Under this program, the boards of harbor commissioners of the City of Long Beach and the City of Los Angeles adopted the Clean Truck Fund Rate of $10 per loaded TEU moved by truck in and out of port terminals. There are certain exemptions for use of low NO_x and zero emissions trucks. Collection of the CTF rate began on April 1, 2022. Currently, Port staff are working on strategies to implement the Clean Truck Fund rates and develop priorities and guidance for distributing funds to incentivize transition to near-zero and zero-emission trucks.
- Requiring terminal operators to purchase zero-emissions equipment if feasible, or near-zero or cleanest available when procuring new equipment.
- Further reducing emissions from ships at-berth, and transitioning the oldest, most polluting ships out of the San Pedro Bay fleet.
- Accelerating the deployment of cleaner engines and operational strategies to reduce harbor craft emissions.
- Expanding use of on-dock rail to shift more cargo leaving the port to go by rail.

[1] *www.cleanairactionplan.org/documents/final-2017-clean-air-action-plan-update.pdf*

San Pedro Bay Emissions Reduction Standards

The 2017 CAAP Update did not alter the 2010 CAAP Update goals that set health risk and emission reduction standards but did incorporate two new emission targets to reduce GHGs from port-related sources as described below.

Health Risk Reduction Standard

To complement the CARB's Air Pollution Reduction Programs including the Diesel Risk Reduction Plan, the Ports of Long Beach and Los Angeles have developed the following standard for reducing overall goods movement-related health risk impacts, relative to 2005 emissions level:

- By 2020, reduce the population-weighted cancer risk attributed to port-related DPM pollution by 85% in highly impacted communities located proximate to port sources and throughout the residential areas in the port region.

Emission Reduction Standard

Consistent with the ports' commitment to meet their fair-share of mass emission reductions of air pollutants, the Ports of Long Beach and Los Angeles developed the following standards for reducing air pollutant emissions from goods movement-related activities, relative to 2005 emission levels:

- By 2023, reduce emissions of NO_x by 59%, of SO_x by 93%, and of DPM by 77% to support attainment of the national and federal 8-hour ozone standards and national fine particulate matter ($PM_{2.5}$) standards.

2017 CAAP Update New Emission Reduction Targets

- Reduce GHGs from port-related sources to 40% below 1990 levels by 2030
- Reduce GHGs from port-related sources to 80% below 1990 levels by 2050

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
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)**	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**	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	Vessels 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**	DPM PM NO_x	2012	Vessel operators who choose to participate in technology

www.cleanairactionplan.org/strategies/ships/		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 will be fully implemented by 2022
CARB	**Amendments to the Commercial Harbor Craft Regulation** *ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft*		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	All cargo handling equipment operating at ports and intermodal railyards.
CARB	**New Emission Standards, Test Procedures, for Large Spark Ignition (LSI) Engine Forklifts and Other Industrial Equipment**	All	2007 – Phase 1 2010 – Phase 2	Emission standards for large spark-ignition engines 25 hp or greater.
CARB	**Fleet Requirements for Large Spark Ignition Engines**	All	2009-2013	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)**	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

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 NOx and ZE trucks exempt

APPENDIX B:
CARGO HANDLING EQUIPMENT DATA

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
AGV	Gottwald	CT 70 BN	Electric					3075	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3005	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3084	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2828	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3165	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2760	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3125	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2880	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3106	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2898	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3053	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2932	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3215	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1898	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3217	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3021	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2919	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3073	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2968	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2176	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3317	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3112	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3218	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2157	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3126	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3061	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2791	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2492	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3086	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3087	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2965	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3025	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2382	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2994	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2932	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2900	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3050	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3273	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3182	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2898	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2929	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2599	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3094	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2764	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2720	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2697	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3055	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2766	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2999	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3076	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3110	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3132	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3217	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3090	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3128	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2604	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2604	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3207	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3085	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2846	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3277	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1440	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3007	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2907	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3270	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3217	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3028	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3070	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3147	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3073	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3183	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3192	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2033	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2420	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2424	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2464	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2429	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1852	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1401	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2318	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2432	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2485	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2365	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2435	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2352	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2152	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2081	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2355	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2373	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2041	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2222	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1934	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2061	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1788	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1354	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					3141	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					2073	CHE Electric				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
AGV	Gottwald	CT 70 BN	Electric					1469	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1518	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1215	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1447	CHE Electric				
AGV	Gottwald	CT 70 BN	Electric					1431	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2524	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2743	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2601	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3063	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2708	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2999	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2961	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2831	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3046	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2970	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2622	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2553	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2965	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2577	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2676	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3087	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2939	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2659	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2941	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2804	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2854	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2556	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2679	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2939	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3090	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2992	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2720	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2835	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3102	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2885	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2964	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3000	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3039	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2930	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2734	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2985	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3057	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2985	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2676	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2357	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2357	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2924	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2944	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3117	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2864	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2969	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2864	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3207	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3251	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3172	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3249	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3174	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2987	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2939	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3256	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3121	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3120	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3243	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3266	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3011	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3255	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3070	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					3090	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2942	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2970	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2546	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2384	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					2247	CHE Electric				
Automatic Stacking Crane	ZPMC		Electric					1926	CHE Electric				
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	1319	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	2118	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	1048	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	1946	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Diesel	Kubota	V1505-ET04	2016	35	2233	CHE Diesel				4/1/2022
Cone Vehicle	Motrec		Electric					901	CHE Electric				
Cone Vehicle	Motrec		Electric					788	CHE Electric				
Cone Vehicle	Motrec		Electric					756	CHE Electric				
Crane	Linkbelt	HSP-8015	Diesel	GMC	50435001	1985	334	0	CHE Diesel				
Crane	Linkbelt	HTC86110	Diesel			2020	450	5	CHE Diesel				
Crane	Terex	RT555	Diesel	Cummins	QSB 6.7	2016	173	267	CHE Diesel				
Crane	American	325	Electric			1980	0	0	CHE Electric				
Crane	Gottwald	330EG	Electric			2006	0	0	CHE Electric				
Crane	ZPMC		Electric					2790	CHE Electric				
Crane	ZPMC		Electric					1701	CHE Electric				
Crane	ZPMC		Electric					2612	CHE Electric				
Crane	ZPMC		Electric					1787	CHE Electric				
Crane	ZPMC		Electric					1241	CHE Electric				
Excavator	CAT	336F	Diesel			2016			CHE Diesel				
Forklift	Hyster	H100FT	Diesel	Kubota	V3800	2021	73	397	CHE Diesel				
Forklift	Hyster	H210HD2	Diesel	Cummins	QSB4.5	2020	160	2	CHE Diesel				
Forklift	Linde	H50D	Diesel	VW	1.75L	2008		250	CHE Diesel				
Forklift	Linde	H50D	Diesel	VW	1.75L	2008		250	CHE Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Forklift	World	FD100	Diesel	Cummins	QSF3.8	2019	130	300	CHE Diesel				
Forklift	World	FD100	Diesel	Cummins	QSF3.8	2019	130	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	tx-330m	Diesel	Cummins	16 T	2013	170	300	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	TX360M	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	300	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	300	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	300	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	300	CHE Diesel				
Forklift	Taylor	XH400RC	Diesel	Cummins	QSB6.7	2018	225	300	CHE Diesel				
Forklift	Wiggins	W360YXL	Diesel	Volvo	TAD570-72VE	2018	215	300	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	200	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	200	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	200	CHE Diesel				
Forklift	Taylor	27 T	Diesel		27 T	2017	250	200	CHE Diesel				
Forklift	Taylor	X550M	Diesel	Cummins	QSL9	2018	250	300	CHE Diesel				
Forklift	Taylor	X550RC	Diesel	Cummins	QSB6.7	2018	225	300	CHE Diesel				
Forklift	Taylor	X550RC	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	X550RC	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2019	225	300	CHE Diesel				
Forklift	Taylor	X620RR	Diesel	Cummins	QSL9	2017	250	300	CHE Diesel				
Forklift	Taylor	36 T	Diesel		36 T	2016	250	150	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2017	160	583	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2014	160	584	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2014	160	917	CHE Diesel				
Forklift	Hyster	H155FT	Diesel	Kubota	V3800	2017	106	595	CHE Diesel				
Forklift	Hyster	H155XL2	Diesel	Kubota	V3800	2015	106	916	CHE Diesel				
Forklift	Hyster	H210HD	Diesel	Kubota	V3800	2015	106	972	CHE Diesel				
Forklift	Hyster	H155XL2	Diesel	Kubota	V3800	2014	93	907	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2013	160	389	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2013	160	412	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2016	160	898	CHE Diesel				
Forklift	Hyster	H210D	Diesel	Cummins	QSB4.5	2017	160	374	CHE Diesel				
Forklift	Hyster	H 210HD	Diesel	Cummins	QSB4.5	2016	160	306	CHE Diesel				
Forklift	Linde	H80D	Diesel	Duetz	BF6M2012	2007	100	847	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	144	CHE Diesel				
Forklift	Wiggins	W110YM-12	Diesel	Volvo	TAD570VE	2019	215	240	CHE Diesel				
Forklift	Wiggins	W110YM-12	Diesel	Volvo	TAD570VE	2019	215	269	CHE Diesel				
Forklift	Caterpillar	P33000D	Diesel	Caterpillar	6M60-TLA3T	2008	148	180	CHE Diesel				
Forklift	Caterpillar	P33000D	Diesel	Caterpillar	6M60-TLA3T	2008	148	180	CHE Diesel				
Forklift	Genie	GTH1056	Diesel	Deutz	TCD3.6L4	2015	121	360	CHE Diesel				
Forklift	Genie	GTH1056	Diesel	Deutz	TCD3.6L4	2015	121	320	CHE Diesel				
Forklift	Taylor	TXH-350L	Diesel	Volvo	TAD1371-75VE	2013	382	18	CHE Diesel				4/1/2022
Forklift	Taylor	TX360M	Diesel	Volvo	TAD1371-75VE	2014	382	4	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	90	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	364	CHE Diesel				4/1/2022
Forklift	Hyster		Diesel	Kubota		2018	73	369	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	111	CHE Diesel				4/1/2022
Forklift	Taylor		Diesel	Cummins	QSB6.7	2018	173	126	CHE Diesel				4/1/2022
Forklift	Clark		Diesel	Duetz	TD3.6L4	2018	74	843	CHE Diesel				4/1/2022
Forklift	Clark		Diesel	Duetz	TD3.6L4	2018	74	218	CHE Diesel				4/1/2022
Forklift	Taylor	X2805	Diesel			2019		13	CHE Diesel				4/1/2022
Forklift	Taylor	T300M	Diesel	Cummins	QSB5.9	2004	165	2205	CHE Diesel			6/1/2021	
Forklift	Taylor	T300M	Diesel	Cummins	QSB5.9	2004	165	1629	CHE Diesel	6/6/2014		6/1/2021	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2015		798	CHE Diesel			6/1/2021	
Forklift	Taylor	HX360L	Diesel	Cummins	QSB6.7	2018		1773	CHE Diesel			6/1/2021	
Forklift	Taylor	X-300M	Diesel	Cummins	QSB6.7	2017	220	1691	CHE Diesel			6/1/2021	
Forklift	Taylor	X-300M	Diesel	Cummins	QSB6.7	2017	220	1848	CHE Diesel			6/1/2021	
Forklift	Taylor	X-300M	Diesel	Cummins	QSB6.7	2017	220	1972	CHE Diesel			6/1/2021	
Forklift			Diesel			2018	220	241	CHE Diesel			6/1/2021	
Forklift	Taylor	XL360L	Diesel			2018	173	500	CHE Diesel			6/1/2021	
Forklift	Taylor	T-300M	Diesel			2003	165	1174	CHE Diesel	9/10/2014		6/1/2021	
Forklift	Taylor	TX300M	Diesel	Cummins		2014		726	CHE Diesel			6/1/2021	
Forklift	Taylor	TX300M	Diesel	Cummins		2014		946	CHE Diesel			6/1/2021	
Forklift	Taylor	TX300M	Diesel	Cummins		2014		778	CHE Diesel			6/1/2021	
Forklift	Taylor	XL360L	Diesel	Cummins	QSB6.7	2018	173	238	CHE Diesel			6/1/2021	
Forklift	JLG Skytrak	8042 T4F	Diesel	Cummins	QSF3.8	2015	110	185	CHE Diesel				4/1/2022
Forklift	JLG Skytrak	8042 T4F	Diesel	Cummins	QSF3.8	2015	110	48	CHE Diesel				4/1/2022
Forklift	Combi lift		Diesel			2014		94	CHE Diesel				4/1/2022
Forklift	Combi lift		Diesel			2021		96	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	887	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	254	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	259	CHE Diesel				4/1/2022
Forklift	Hyster	H360-48HD2	Diesel	Cummins	QSB6.7	2015	164	468	CHE Diesel				4/1/2022
Forklift	Taylor		Diesel	Cummins	11.5 T	2002	173	1820	CHE Diesel	8/25/2014			
Forklift	Taylor	THD360L	Diesel	Cummins	11.5 T	2002	173	1557	CHE Diesel	8/25/2014			
Forklift	Taylor	TX360M	Diesel	Cummins	11.5 T	2007		1809	CHE Diesel	12/1/2011			
Forklift	Taylor	TH350L	Diesel	Cummins	11.5 T	2005	150	1120	CHE Diesel	8/25/2014			
Forklift	Taylor	TH350L	Diesel	Cummins	11.5 T	2005	150	907	CHE Diesel	8/25/2014			
Forklift	Taylor	T520M	Diesel	Cummins	25 ton	2008		187	CHE Diesel	12/1/2011			
Forklift	Taylor	X550M	Diesel	Isuzu	55000 lbs	2015	100	512	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				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
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	1108	CHE Diesel				
Forklift	Taylor	X360M	Diesel	Cummins	36000 lbs	2017		5913	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	Hyster	N40ZRS2	Electric					49	CHE Electric				
Forklift	Hyster	N40ZRS2	Electric					3	CHE Electric				
Forklift	Hyster	J360XD	Electric					274	CHE Electric				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	1138	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	957	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	888	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	6,000 lb	2013	59	912	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	7000 lb	2013	59	861	CHE Gasoline				
Forklift	Mitshubishi	K25	Gasoline	Nissan	7000 lb	2013	59	480	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline			2016		836	CHE Gasoline				
Forklift	Mitsubishi	H80XM	Gasoline			2002		19	CHE Gasoline				
Forklift	Doosan	G35C-7	Gasoline			2022		72	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline	Nissan	8,000 lb	2012	59	300	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline	Mitsubishi	TB45	2011	72	0	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline	Mitsubishi	TB45	2011	72	519	CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline	Mitsubishi	TB45	2016	72	537	CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline	Mitsubishi	TB45	2016	72	282	CHE Gasoline				
Forklift	Mitsubishi	FG35N	Gasoline	Mitsubishi	TB45	2016	72	250	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		358	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		562	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		264	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		647	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		6,000 lb	2013		734	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb	2013		131	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb	2013		616	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb			362	CHE Gasoline				
Forklift	Mitsubishi	K25	Gasoline		7,000 lb	2013		482	CHE Gasoline				
Forklift	Mitsubishi	FG40N	Gasoline		8,000 lb	2012		423	CHE Gasoline				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K1	LPG	Nissan	5 T	2006	117	350	CHE Propane				
Forklift	Mitsubishi	FG45K-LP	LPG	Nissan	TB45L	2007	117	350	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	150	CHE Propane		8/21/2013		
Forklift	Caterpillar	GP25N5	LPG	GCT	JNFXB02.548D	2018	62	225	CHE Propane		8/21/2013		
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	146	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	135	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	170	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	130	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	115	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	240	CHE Propane				
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2014	96	285	CHE Propane				
Forklift	Caterpillar	GP30	LPG	Mitsubishi	3MCFB2350MEA	2003	57	175	CHE Propane		8/21/2013		
Forklift	Caterpillar	GP30	LPG	Mitsubishi	3MCFB2350MEA	2003	57	210	CHE Propane		8/6/2013		
Forklift	Clark	C25L	LPG	GM	DPSIB2.7GLP	2013	96	165	CHE Propane				
Forklift			LPG				84	250	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	4	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	161	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	125	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	236	CHE Propane				
Forklift			LPG		QSB 6.7	2013	74	211	CHE Propane				
Forklift	Mitsubishi	FG25	LPG	Mitsubishi	4G63	1992	42	41	CHE Propane				
Forklift	Mitsubishi	FG25	LPG	Mitsubishi	4G63	1992	42	1848	CHE Propane				
Forklift	Mitsubishi	FG35	LPG	GM	GM4.3	1992	58	237	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	259	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	48	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	57	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	163	CHE Propane				
Forklift	Hyster	H60FT	LPG	Mazda	2.2	2014	46	240	CHE Propane				
Forklift	Mitsubishi	FG30K	LPG	Mitsubishi	4G64	2000		44	CHE Propane				
Forklift	Hyster	Fortis 80	LPG	Kubota	WG3800	2014	46	657	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	259	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	97	CHE Propane				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	56	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	154	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	143	CHE Propane				
Forklift	Hyster	H60FT	LPG	Kubota	WG3800	2015	46	394	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2015	98	574	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2015	98	626	CHE Propane				
Forklift	Hyster	H80FT	LPG	Kubota	WG3800	2015	98	409	CHE Propane				
Forklift	Hyster		LPG		5 T	2010	117	659	CHE Propane				
Forklift	Hyster	H80XM	LPG	GM	6 cyl	2004	94	120	CHE Propane				
Forklift	Caterpillar	GP30K	LPG		6,000 lb	2000	62	381	CHE Propane				
Forklift	Caterpillar	GP30K	LPG		6,000 lb	2000	62	307	CHE Propane				
Forklift	Caterpillar	PG55N1	LPG	GCT	12000 lbs	2017	141	0	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		853	CHE Propane				
Forklift	Clark	C25L	LPG		5000 lbs	2015	75	292	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	3006	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	2909	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	2372	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	2468	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	2864	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	2945	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	3047	CHE Diesel				4/1/2022
Hybrid RTG	MIT-Paceco	KTA 19	Diesel	Caterpillar	C7.1	2016	250	3147	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	2863	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	2968	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	2894	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	3225	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	3277	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	2035	CHE Diesel				4/1/2022
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7.1	2016	250	2568	CHE Diesel				4/1/2022
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169		CHE Diesel			6/1/2021	
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169		CHE Diesel			6/1/2021	
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169		CHE Diesel			6/1/2021	
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169		CHE Diesel			6/1/2021	
Hybrid RTG	ZPMC	RC50.8/66	Diesel	Cummins	QSB5-G11	2019	169		CHE Diesel			6/1/2021	
Hybrid RTG	ZPMC	RC50.8/66	Diesel			2021	169		CHE Diesel			6/1/2021	
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1099	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1243	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1149	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1102	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1067	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	1090	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	0	CHE Diesel				
Hybrid RTG	412318-16L-2045C-HY		Diesel	Cummins		2021	133	0	CHE Diesel				
Loader	Caterpillar	950M	Diesel	Caterpillar	C7.1	2016	174	833	CHE Diesel				
Loader	Caterpillar	988 K	Diesel	Caterpillar	C18	2021	560	3143	CHE Diesel				
Loader	Caterpillar	988 K	Diesel	Caterpillar	C18	2021	560	655	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	2126	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	1653	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	1937	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2017	420	2358	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2020	420	2111	CHE Diesel				
Loader	Caterpillar	980M	Diesel	Caterpillar	C13	2015	418	1852	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	600S	Diesel	Perkins	404-22T	2009	62	0	CHE Diesel				
Man Lift	JLG	1500SJ	Diesel	Deutz	TCD2.9 L4	2014	74	81	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
Man Lift	JLG	1500SJ	Diesel			2013	74	143	CHE Diesel				4/1/2022
Man Lift	JLG	1350SJP	Diesel	Deutz	TCD2.9L4	2017	99	84	CHE Diesel			6/1/2021	
Man Lift	JLG		Diesel			2013		133	CHE Diesel				4/1/2022
Man Lift	JLG		Diesel			2021		292	CHE Diesel				4/1/2022
Man Lift	JLG		Diesel			2020		32	CHE Diesel				4/1/2022
Man Lift	JLG		Diesel			2000		24	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	0	CHE Diesel				
Man Lift	Genie		Diesel			2013	48	250	CHE Diesel				
Man Lift	Genie	S-85	Diesel			2009			CHE Diesel				
Man Lift	JLG		Electric					184	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	87	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	1136	CHE Diesel				
Rail pusher	RailKing	RK 330	Diesel	Cummins	QSB6.7 195	2019	195	1260	CHE Diesel				
Rail pusher	TRKMOB	Titan T4	Diesel			2013	150	289	CHE Diesel				4/1/2022
Rail pusher	TRKMOB	Titan T4i	Diesel			2013	260	520	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	3325	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	3189	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	1402	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	2917	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	2703	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	2939	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	3453	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	2834	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	Kone		Diesel	Cummins	QSX15	2021	503	3396	CHE Diesel				4/1/2022
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	2419	CHE Diesel	2/26/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1999	615	2856	CHE Diesel	1/31/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1999	615	3292	CHE Diesel	6/24/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1999	615	2969	CHE Diesel	1/31/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1999	615	3004	CHE Diesel	1/31/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	2789	CHE Diesel	11/4/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	3106	CHE Diesel	11/1/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	2594	CHE Diesel	10/21/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	3368	CHE Diesel	1/27/2014			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	2964	CHE Diesel	12/27/2013			
Rub-trd Gantry Crane	ZPMC	RC40.6/64	Diesel	Cummins	KTA19	1998	615	3886	CHE Diesel	11/22/2013			
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4476	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4117	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4268	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4387	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4608	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4075	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4074	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4368	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4192	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4367	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3726	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	3591	CHE Diesel				
Rub-trd Gantry Crane	Paceco	RT 4023-81-5	Diesel	CAT	C15	2013	515	4329	CHE Diesel				
Rub-trd Gantry Crane	ZPMC		Diesel			2005	515	4961	CHE Diesel				
Rub-trd Gantry Crane	ZPMC		Diesel			2005	515	3988	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	Taylor	TECSP157/8	Diesel	Cummins	B5.9C	2002	205	56	CHE Diesel	3/2/2013		6/1/2021	
Side pick	Taylor	TECSP157/8	Diesel	Cummins	QSBB5.9C	2006	205	0	CHE Diesel	5/2/2013		6/1/2021	
Side pick	Taylor	TECSP157/8	Diesel	Cummins	QSBB5.9C	2006	205	210	CHE Diesel	5/2/2013		6/1/2021	
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	341	CHE Diesel				
Skid Steer Loader	Caterpillar	226D	Diesel		C2.2	2015	67	200	CHE Diesel				
Skid Steer Loader	CAT	226-B	Diesel			2011		500	CHE Diesel				
STS Crane			Electric					906	CHE Electric				
STS Crane			Electric					2285	CHE Electric				
STS Crane			Electric					2396	CHE Electric				
STS Crane			Electric					2796	CHE Electric				
STS Crane			Electric					2062	CHE Electric				
STS Crane			Electric					2398	CHE Electric				
STS Crane			Electric					2062	CHE Electric				
STS Crane			Electric					2773	CHE Electric				
STS Crane			Electric					3928	CHE Electric				
STS Crane			Electric					3675	CHE Electric				
STS Crane			Electric					3083	CHE Electric				
STS Crane			Electric					1116	CHE Electric				
STS Crane			Electric					1333	CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
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STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane			Electric						CHE Electric				
STS Crane	ZPMC		Electric					848	CHE Electric				
STS Crane	ZPMC		Electric					1730	CHE Electric				
STS Crane	ZPMC		Electric					1849	CHE Electric				
STS Crane	ZPMC		Electric					2170	CHE Electric				
STS Crane	ZPMC		Electric					2157	CHE Electric				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
STS Crane	ZPMC		Electric					2097	CHE Electric				
STS Crane	ZPMC		Electric					2162	CHE Electric				
STS Crane	ZPMC		Electric					2164	CHE Electric				
STS Crane	ZPMC		Electric					2112	CHE Electric				
STS Crane	ZPMC		Electric					2194	CHE Electric				
STS Crane	ZPMC		Electric					2201	CHE Electric				
STS Crane	ZPMC		Electric					2148	CHE Electric				
STS Crane	ZPMC		Electric					2038	CHE Electric				
STS Crane	ZPMC		Electric					1445	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	Schwarze	S3481	Diesel	Isuzu	4HEZXS	2002	190	300	CHE Diesel			6/1/2021	
Sweeper	Elgin	Crosswind	Diesel			2019	220	46	CHE Diesel				4/1/2022
Sweeper	Tymco		Diesel			2016		1274	CHE Diesel				
Sweeper	Peterbuilt		Diesel			2013		1185	CHE Diesel				
Sweeper	Tymco		Diesel			2019		482	CHE Diesel				
Sweeper	Mar-Co	Powerboss	Diesel			2020		104	CHE Diesel				
Sweeper	Tennant	Centurion	Diesel			2005	180	162	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					66	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	30	CHE Propane				
Sweeper	Tennant	6650XP	LPG	GM		2004	55	18	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	163	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	49	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD 1360VE	2011	343	60	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD 1360VE	2011	343	118	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel		TAD 1360VE	2013	343	132	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	379	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1377	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1847	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	2597	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	2291	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	2634	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	1870	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	2809	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	2495	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	150	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	2594	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2015	382	3008	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2625	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2415	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2511	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2625	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2130	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2059	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2903	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1220	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1561	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	2675	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1874	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel	Volvo	TAD1371-75VE	2016	382	1471	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	2058	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	2320	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	1695	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	2621	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2019	382	2177	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	2895	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	2694	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	1972	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	1613	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2020	382	2041	CHE Diesel				4/1/2022
Top handler	Taylor		Diesel			2011	330	2619	CHE Diesel			6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2006	335	980	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2006	335	1656	CHE Diesel	1/28/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2005	330	1911	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2006	335	1485	CHE Diesel	2/13/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2005	335	1188	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSMII-C	2005	335	1094	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	1858	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	1801	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	300	1792	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	300	1988	CHE Diesel	4/27/2013		6/1/2021	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1695	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1746	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2284	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2433	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	1523	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2479	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2112	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2229	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2313	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2257	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2470	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2604	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2011	330	2509	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2012	330	2298	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2018		3579	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2018		3069	CHE Diesel			6/1/2021	
Top handler	Taylor	TXLC976	Diesel	VOLVO	TAD1360VE	2019		4015	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	734	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	917	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	2459	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	870	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1262	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1055	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1133	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1883	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1928	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	1217	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC976	Diesel	Volvo	TAD1371VE	2017	285	2370	CHE Diesel			6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2001	275	116	CHE Diesel	4/29/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2001	275	807	CHE Diesel	4/25/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2001	275	351	CHE Diesel	4/25/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	169	CHE Diesel	4/30/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2003	300	11	CHE Diesel	4/29/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2003	300	270	CHE Diesel	4/29/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2003	300	2244	CHE Diesel	4/19/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	300	781	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	300	1059	CHE Diesel	4/22/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2004	335	761	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	2004	335	1797	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2007	275	527	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	955	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	611	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2002	300	114	CHE Diesel	4/27/2013		6/1/2021	
Top handler	Taylor	THDC 955	Diesel	Cummins	QSM11-C	2007	275	314	CHE Diesel	12/1/2012		6/1/2021	
Top handler	Taylor		Diesel			2014		2090	CHE Diesel			6/1/2021	
Top handler	Taylor		Diesel			2014		1278	CHE Diesel			6/1/2021	
Top handler	Taylor		Diesel			2014		2312	CHE Diesel			6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Cummins		2015		2277	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2015		2077	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2015		2865	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2015		1921	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2015		2312	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2015		2420	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2018		3205	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2018		800	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2018		3356	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2019		2444	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2019		2811	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2019		2810	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2019		2945	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		2201	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		1424	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		2517	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		2450	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		1890	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		2517	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		1674	CHE Diesel			6/1/2021	
Top handler	TXLC 976		Diesel			2020		2709	CHE Diesel			6/1/2021	
Top handler	Hyster	HY	Diesel	Cummins	QSL9 350	2013	335	61	CHE Diesel				4/1/2022
Top handler	Hyster	HY	Diesel	Cummins	QSL9 350	2013	335	50	CHE Diesel				4/1/2022
Top handler	Hyster	HY	Diesel	Cummins	QSL9 350	2013	335	279	CHE Diesel				4/1/2022
Top handler	Hyster	RS 45-31CH	Diesel	Cummins	QSL9-350	2013	350	63	CHE Diesel				4/1/2022
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2451	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2713	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	3522	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2944	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	3844	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	3537	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	3684	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	3749	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	2798	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2017	388	3730	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	3098	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	3662	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	3276	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2018	388	3571	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	3689	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	3223	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2505	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	3214	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2565	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	3205	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2019	388	2307	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2140	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2846	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	2214	CHE Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	1769	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	1914	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	14	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	175	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	15	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	406	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	11	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	4	CHE Diesel				
Top handler	Taylor	XLC 976	Diesel	Volvo	TAD-1371VE	2021	388	4	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1845	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2522	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2206	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2629	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2999	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2073	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2118	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3323	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2947	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2680	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2508	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2544	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3086	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2492	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2845	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2023	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3217	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3079	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2707	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	837	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3062	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3041	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3302	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2845	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	1734	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3175	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2090	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2787	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2933	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3256	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2966	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2974	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2857	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2913	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2873	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	3146	CHE Diesel				
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD-1360VE	2012	343	2943	CHE Diesel				
Top handler	Taylor	THDC-9555	Diesel	Cummins	QSM-11	2004	300	947	CHE Diesel	4/11/2012			
Top handler	Taylor	THDC-9555	Diesel	Cummins	LT 10-C	2006	250	964	CHE Diesel	4/9/2012			
Top handler	Taylor	TXC976	Diesel			2008		1439	CHE Diesel	2/1/2011			
Top handler	Taylor	TXC976	Diesel			2008		270	CHE Diesel	2/1/2011			
Top handler	Taylor	TXC976	Diesel			2008		753	CHE Diesel	2/1/2011			
Top handler	Taylor	XEC207/8	Diesel			2020		2796	CHE Diesel				
Top handler	Taylor	XEC207/8	Diesel			2020		4008	CHE Diesel				
Top handler	Taylor	XEC207/8	Diesel			2018		1773	CHE Diesel				
Top handler			Electric			2019		0	CHE Electric				
Top handler			Electric			2019		0	CHE Electric				
Tractor	Kubota	M59	Diesel	Kubota	2403M	2009	59	80	CHE Diesel				
Tractor	Mitsubishi	FG30BLP	LPG	Mitsubishi	N/A	1996	57	180	CHE Propane		8/6/2013		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	220	CHE Propane		8/22/2012		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	220	CHE Propane		8/23/2012		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	210	CHE Propane		8/21/2012		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	215	CHE Propane		4/27/2010		
Tractor	United Tractor	SM-50F	LPG	Ford	CSG6491	1996	101	220	CHE Propane		2/10/2016		
Tractor	United Tractor	SM-50-F	LPG			1997	101	0	CHE Propane		7/13/2010		
Truck	Freightlinger	ISB6.7	Diesel	Cummins	M2106	2011	300	0	CHE On Road Diesel				
Truck	Ford	F750	Diesel	Ford	4V-F Series	2020	300	546	CHE Diesel				
Truck	Terex	TR45	Diesel	Cummins	QSK19	2019	545	246	CHE Diesel				
Truck	Terex	TR45	Diesel	Cummins	QSK19	2009	525	0	CHE Diesel				
Truck	Terex	TR45	Diesel	Cummins	QSK19	2009	525	0	CHE Diesel				
Truck	McClellan		Diesel	Cummins	L9	2018	177	1497	CHE On Road Diesel	1/21/2014			4/1/2022
Truck	Sterline		Diesel			2006	300	680	CHE On Road Diesel	1/21/2014			4/1/2022
Truck	Ford/Bosserman	F-750	Diesel			2007		252	CHE Diesel				4/1/2022
Truck	Ford/Bosserman	F-750	Diesel			2007		560	CHE Diesel				4/1/2022
Truck	International	Transtar	Diesel			2011		2284	CHE Diesel				
Truck	International	Transtar	Diesel			2011		1891	CHE Diesel				
Truck	International	Workstar	Diesel			2009		1875	CHE Diesel				
Truck	Kenworth	Combo	Diesel			2006		2434	CHE Diesel				
Truck	Freightliner	Combo	Diesel			2016		1444	CHE Diesel				
Truck	Ford	F750	Diesel	Ford	6.7	2016	270	320	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	250	CHE Diesel				
Yard tractor	Capacity	6BTA	Diesel	Cummins	ISB6.7	2013	200	533	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	132	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1260	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1170	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	986	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1611	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1319	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1343	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	701	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	180	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1591	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1428	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1004	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1637	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1820	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	910	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1647	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1777	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1653	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1416	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1816	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1510	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1743	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2015	173	1803	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1982	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2575	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1732	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1893	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1895	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1904	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1562	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1743	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1713	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2366	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2218	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2204	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1977	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1977	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1886	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2022	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2070	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1802	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2026	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2245	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2287	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1909	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1239	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1912	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	1682	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2018	173	2029	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	701	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1682	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2029	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1814	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2756	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1047	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2495	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2357	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2487	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1987	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2205	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2044	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2485	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2405	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1568	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2332	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2355	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2449	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2457	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1195	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1597	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2397	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2453	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2071	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1862	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2490	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2367	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1681	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2366	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2482	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2025	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2473	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2627	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2144	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	479	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2265	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2393	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1989	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2106	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2429	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	627	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1780	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1953	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2431	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2280	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2441	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2099	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	3669	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2465	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1639	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2156	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2032	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2374	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	966	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2039	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2298	CHE Diesel				4/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2003	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2321	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2165	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2050	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1436	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2101	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	1336	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2020	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2275	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2314	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2019	173	2233	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	2154	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1973	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1776	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	2912	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	2807	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	2202	CHE Diesel				4/1/2022
Yard tractor	Kalmar		Diesel	Cummins	QSB6.7	2021	173	1673	CHE Diesel				4/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2418	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2212	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1580	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2869	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2663	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1091	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2365	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2714	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2232	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2260	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2584	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1477	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2578	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2506	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1580	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2458	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2480	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2249	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2465	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1888	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2437	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2535	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2189	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	2353	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	1938	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB Tier 3	2007	200	971	CHE On Road Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	269	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	337	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1753	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1817	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2380	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1940	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	227	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1915	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1538	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1962	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1679	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	2037	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1647	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1683	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	0	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa	T2	Diesel	Cummins	QSB6.7225	2016	225	1958	CHE Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Edelbrock	454 Engine	2017	204	379	CHE Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Edelbrock	454 Engine	2017	204	719	CHE Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Edelbrock	454 Engine	2017	204	1376	CHE Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1237	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173		CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1781	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1993	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1789	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1652	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	1640	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2008	173	2534	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1453	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1716	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1706	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1402	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	2073	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1993	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	2072	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1914	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1837	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1677	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	1345	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	2236	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	2634	CHE On Road Diesel			6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2007	173	2298	CHE On Road Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1936	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1842	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2505	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2006	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1620	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	1434	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2044	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1935	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1896	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1566	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2103	CHE Diesel			6/1/2021	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2012	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1931	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2296	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	758	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1582	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2134	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2249	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2045	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1758	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1664	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1893	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2049	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1896	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1999	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1870	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1837	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2155	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	2357	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1859	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1713	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1890	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1797	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1562	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2127	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	464	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1863	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1830	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1758	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2095	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2388	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	5078	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1774	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	2523	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1828	CHE Diesel			6/1/2021	
Yard tractor	Kalmar/Ottawa		Diesel	Cummins	6.7 QSB	2016	225	1757	CHE Diesel			6/1/2021	
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2972	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2394	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2057	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2238	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2673	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2084	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3169	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1889	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3095	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3361	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2279	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2762	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2938	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2484	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2027	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2559	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2170	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2895	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2888	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2452	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1773	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2248	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2310	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2466	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2541	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2551	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2136	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2659	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3202	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	3156	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2384	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2382	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1992	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	2330	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	693	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	873	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1123	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	556	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	0	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	494	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	187	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	116	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	1283	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	331	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	264	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	35	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	415	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1632	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	356	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	998	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	320	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	742	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	1278	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	305	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	424	CHE On Road Diesel				4/1/2022
Yard tractor	Ottawa	YT-50	Diesel	Cummins	ISB6-720	2014	250	9	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	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2686	CHE Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2986	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2557	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2906	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	3025	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2109	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2450	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	3138	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	2727	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	1660	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2823	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2709	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB 6.7	2016	225	2529	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2953	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2945	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2769	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	3046	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2302	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2500	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2984	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2623	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	1866	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2737	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2964	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2867	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2991	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2198	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2019	225	2706	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3038	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3165	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2889	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2300	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2978	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3081	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	1905	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2795	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2166	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2714	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2408	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2695	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2500	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3042	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3262	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3362	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2893	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2936	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2916	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3019	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3222	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3348	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	3344	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2011	240	2519	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3285	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2678	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2754	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3069	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2586	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3024	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2578	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2635	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2518	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2980	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2431	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2635	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3234	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2698	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2978	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2756	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3121	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2630	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2788	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2982	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2678	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2457	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2998	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2172	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2943	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3196	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3382	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2437	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3261	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2938	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2720	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2735	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2397	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3296	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	2951	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3037	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3278	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3032	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2012	240	3093	CHE On Road Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	3014	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2512	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2624	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2871	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2645	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	3223	CHE Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2858	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2297	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2870	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2846	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2742	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2495	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2936	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2922	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2827	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2701	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2407	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2170	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2845	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2020	225	2824	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1201	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1861	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2327	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1827	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1846	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2116	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1994	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2154	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1075	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2073	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2175	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2242	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2007	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1793	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	1911	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2021	225	2075	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	449	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	531	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	578	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	541	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	539	CHE Diesel				
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2022	225	569	CHE Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2675	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3286	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2908	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2781	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3219	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3066	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3105	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2875	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2927	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2996	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2741	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2696	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2462	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2874	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	1430	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2568	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2655	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2672	CHE On Road Diesel				
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	240	2651	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	2364	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	3035	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	2589	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2007	240	2848	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1513	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2994	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2932	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	3113	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2490	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2127	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2924	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2935	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2980	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3010	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2518	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2870	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2817	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2991	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3071	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2884	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3150	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2971	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2468	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2886	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2957	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2841	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3233	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2645	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3088	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2846	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2856	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2399	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2574	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2931	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3030	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	2774	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2777	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2355	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3296	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3058	CHE On Road Diesel				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	3162	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	1946	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2968	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2717	CHE On Road Diesel				
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 6.7	2008	240	2522	CHE On Road Diesel				
Yard tractor	Kalmar	YT-30	Diesel			2021		3666	CHE Diesel				
Yard tractor	Kalmar	YT-30	Diesel			2021		4306	CHE Diesel				
Yard tractor	Ottawa	T2	Diesel	Cummins	QSB6.7 Tier 4 Final	2015	164	341	CHE Diesel				
Yard tractor	Ottawa	T2	Diesel	Cummins	QSB6.7 Tier 4 Final	2017	164	254	CHE Diesel				
Yard tractor	Kalmar	YT-30	Diesel	Cummins	ISB6.7 200	2012	200	0	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	527	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1411	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	633	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1080	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1521	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1378	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1441	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1359	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1670	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1624	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1784	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1344	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	596	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1952	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1701	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1708	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1559	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1704	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1265	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1673	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1623	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1672	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1657	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	695	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1661	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	982	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1705	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1972	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1792	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	731	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1983	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	2036	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1583	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2194	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1184	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	636	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2099	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1975	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2225	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2329	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1465	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2229	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	907	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1985	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1257	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1050	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1455	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1671	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1054	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2211	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1092	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	1753	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2018	335	2345	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1940	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1244	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	1809	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	422	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	872	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	2052	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	2775	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2019	335	3040	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1234	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1100	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1029	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1288	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1307	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1150	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1206	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	973	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	241	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1138	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1093	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1304	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	902	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1134	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1283	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	769	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1096	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	312	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1003	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	349	CHE Gasoline				

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	EngineYear	HP	Annual Hours	Category	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	877	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	900	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	955	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	681	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	717	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	991	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	759	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1052	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	611	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1171	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	854	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1049	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1381	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	926	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1451	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1892	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1085	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1819	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1878	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1716	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1517	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1356	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1630	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1437	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1290	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1697	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1923	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	877	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1306	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1562	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	718	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1788	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1361	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	0	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1626	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1772	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1582	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	774	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	212	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1731	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2020	335	1467	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1569	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy		2019	335	1447	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	1054	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	423	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	646	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	986	CHE Gasoline				
Yard tractor	Dina		Gasoline	Chevy	454-FI	2011	335	607	CHE Gasoline				