

The Port of Stockton
 At-Berth Emissions Reduction - Berths 7/8
 Based on 2018 Emissions Inventory Data
 24-Feb-21
 DRAFT

Potential At-berth Emissions Reduction Range Using Capture and Control Technology at Berths 7/8
 Based on 2018 EI Data

Vessel Type	# Arrivals	Reduction Range *	PM tpy	PM _{2.5} tpy	DPM tpy	NO _x tpy
Tankers	42	High	0.44	0.42	0.27	15.25
Tankers	42	Low	0.38	0.36	0.24	13.15

* Assumptions for High and Low Range

High - Assumed overall 80% control of all at-berth emissions (both boilers and auxiliary engine emissions are controlled) using Capture and Control Technology

Low - Assumed uncontrolled emissions for both boilers and auxiliary engines for 3 hours per arrival for the time needed to start and shut off the control system and 5% of the call are uncontrolled due to VIE/TIE provision included in CARB's regulation

VIE - Vessel Incident Event

TIE - Terminal Incident Event

Emissions Factors Using 0.1% S Marine Gas Oil Fuel

Engine Category	IMO Tier	Model Year Range	PM10 g/kW-hr	PM2.5 g/kW-hr	DPM g/kW-hr	NO _x g/kW-hr
Medium speed auxiliary	Tier 0	1999 and older	0.255	0.240	0.255	13.82
Medium speed auxiliary	Tier I	2000 to 2010	0.255	0.240	0.255	12.22
Medium speed auxiliary	Tier II	2011 to 2015	0.255	0.240	0.255	10.53
Medium speed auxiliary	Tier III	2016 and newer	0.255	0.240	0.255	2.63
High speed auxiliary	Tier 0	1999 and older	0.255	0.240	0.255	10.90
High speed auxiliary	Tier I	2000 to 2010	0.255	0.240	0.255	9.78
High speed auxiliary	Tier II	2011 to 2015	0.255	0.240	0.255	7.71
High speed auxiliary	Tier III	2016 and newer	0.255	0.240	0.255	1.97
Steam propulsion engine and boiler	na	All	0.136	0.128	0.000	1.97