
EMISSIONS CALCULATIONS

1.1. Construction Emissions

Construction of the Project would result in temporary increases in emissions of criteria air pollutants, including particulate matter less than or equal to 10 microns in diameter (PM₁₀), particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}), volatile organic compounds (VOC), carbon monoxide (CO), sulfur dioxide (SO₂), and oxides of nitrogen (NO_x), carbon dioxide equivalents (CO₂e), and hazardous air pollutants (HAP) from the use of diesel-powered and gasoline-powered construction equipment. As a result of the disturbance of the ground surface and other dust-generating actions, temporary fugitive dust generation would also occur during construction activities. Finally, a concrete batch plant onsite during the installation of landside facilities would generate fugitive dust.

Based on the best available information at the 30 percent design phase, the construction emission sources would include:

- Off-road construction equipment – emissions from excavators, generators, marine vessels, water trucks, and other construction equipment;
- On-road vehicle engines – emissions from commuter passenger trucks and diesel or gasoline trucks for material delivery or removal;
- Off-road vehicle fugitives – fugitive dust emissions from on-road vehicles traveling on unpaved roads;
- Earthmoving fugitives – emissions resulting from bulldozing and grading;
- Construction fugitives – emissions resulting from land disturbance;
- Storage pile erosion fugitives – emissions from erosion of material and refuse stockpiles due to wind; and
- Concrete batch plant – emissions from silo and mixer loading, material storage piles, crushing and screening, and material handling.

Emissions from off-road construction equipment engines and marine vessels were calculated based on the estimated fuel used, horsepower, engine load, and the operating schedule. Emission factors for off-road construction engines were determined by using the nonroad module in USEPA's MOtor Vehicle Emission Simulator (MOVES4; USEPA 2023). Marine vessel emission factors were estimated using the Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions (USEPA 2022). Although they would be a relatively minor source of emissions, on-road engine emissions from commuter traffic were also estimated based on the anticipated number of vehicles, number of trips taken, and total mileage of each trip. A maximum trip mileage was conservatively assumed

and applied to all vehicles for each source category (commuter passenger truck, and heavy-duty construction truck). Emission factors for on-road engine emissions were obtained from the on-road module of MOVES4.

Emissions of fugitive dust generated from soil disturbance and vehicles traveling on unpaved roads would also occur at the construction site. Fugitive dust emissions from each construction activity were estimated based on vehicle type, vehicle traffic, roadway characteristics, wind speed, soil type, soil moisture content, and precipitation. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity.

A central mix concrete batch plant would be utilized during construction. Fugitive dust emissions would be generated from the transfer of material, material stockpiles and silos, and material loading associated with the concrete batch plant. Emissions from concrete manufacturing would be controlled by a baghouse.

A complete list of emission factors, methodologies, and assumptions used to determine construction related emission estimates are provided in the tables included in this appendix.

1.2. Operational Emissions

Operation of the proposed Project would result in long-term air pollutant emissions of criteria pollutants, HAPs, and CO₂e due to engine combustion from mobile sources. Emissions from operation of the LIT Terminal would result from diesel- and gasoline-powered marine vessels or ocean-going vessels (OGVs), harbor craft, cargo handling equipment, on-road vehicles, and locomotives used to transport containers to and from the terminal.

Based on the best available information at the 30 percent design phase, the operational phase emission sources at the LIT Terminal would include:

- OGVs – combustion emissions from vessels transporting containerized cargo to and from the terminal;
- Harbor craft – emissions from vessels used in harbors and inland waterways to push barges (including container-on-barges [COB]) and pontoons, vessels used to assist maneuvering other vessels, or vessels used for utility, inspection, survey, and spill response;
- Cargo handling equipment– emissions from equipment used for moving cargo, products, and supplies around the terminal (such as aerial lifts, cranes, and forklifts);
- On-road vehicles – emissions resulting from heavy- and light-duty vehicles used to transport cargo and personnel; and
- Rail – emissions from locomotives during switching and line-haul activities.

Detailed operational emission calculations and assumptions are presented in the subsequent tables. Emissions estimates are associated with the proposed Project operational activities for the year 2028, the planned first year of operation. Although the Project would not be fully operational by 2028, for the purposes of this analysis it was assumed that the Project's total potential operational capacity would commence in 2028.

Emissions estimates for OGVs are based on a maximum annual terminal throughput of 500 container vessel trips per year and a container capacity of 16,000 TEUs per container OGV. Unlike smaller marine vessels with one engine, OGVs shipping containers typically have auxiliary engines in addition to their main engines to supply power for non-propulsion loads, such as electricity. Propulsion and auxiliary engine emissions from container ships were calculated based on number of trips, engine power, engine load, and time spent in each operating mode (transit, maneuvering, and hoteling) as a vessel is approaching or leaving the terminal. Upon start-up on terminal operations, OGV will use auxiliary engines for vessel power during hoteling; however, the Port has plans to allow vessels to connect to electric shore power in the future in order to reduce combustion emissions while vessels are docked. Thus, both emissions scenarios (electric shore power and auxiliary engine combustion) were evaluated for hoteling.

Small maintenance and support vessels used to service the terminal and equipment used for moving cargo between the loading, unloading, and container storage areas, as well as vessels used to support COB transport of materials from OGVs to inland waterways, would also result in on-site emissions. Estimated emissions attributable to harbor craft and cargo handling equipment were calculated based on the fuel used, horsepower, engine load, and the operating schedule. Emission factors for cargo handling equipment were obtained from USEPA's MOtor Vehicle Emission Simulator (MOVES4; USEPA 2023). Harbor craft are frequently owned by the port in which they operate and spend most of their operating time at or near that port. Therefore, the operating schedule for harbor craft is based on the total number of hours per year the engine would be in use.

On-road engine emissions from vehicle traffic to and from the terminal were also estimated based on the number of vehicles, number of trips taken, and total mileage of each trip for commuter passenger trucks, drayage trucks,¹ and heavy-duty delivery trucks. It was conservatively estimated that, for the passenger truck source type, workers would have a 30-mile commute, based on a 2023 economic study (Lewis Terrell and Associates 2023). Assumptions made for the remaining vehicle types are included in the tables below. A maximum trip mileage was conservatively assumed and applied to all vehicles for each source category. Emission factors for on-road engine emissions were obtained from MOVES4 (USEPA 2023). Off-road fugitive particulate matter emissions were not included in the operational emission estimates because the terminal would be paved, avoiding the potential for fugitive dust.

¹ Drayage trucks are those used transport containers between the port and near port locations, such as distribution centers and intermodal railyards.

1 Emissions from rail activities would occur during both switching and line-haul activities.
2 Switching activities occur on-site and produce emissions from sorting rail cars, delivering empty
3 rail cars to terminals, and assembling or disassembling trains. Line-haul locomotives are used to
4 transport cargo to and from the terminal. The Port projects that approximately 750 trains would
5 visit the terminal per year, with a minimum of three locomotives per trains. Locomotive
6 emissions for both haul-line and switching activities are determined by the locomotive activity
7 rate and emission factors for diesel-powered engines.

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1.3. References

- U.S. Environmental Protection Agency (USEPA). 2023. Latest Version of Motor Vehicle Emission Simulator. Available online at: <https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves>. Accessed February 2024.
- U.S. Environmental Protection Agency (USEPA). 2022. Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions. Available Online at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1014J1S.pdf>. Accessed September 2023.
- Lewis Terrell and Associates. 2023. Louisiana International Container Growth: The Economic Impact of the Louisiana International Terminal Complex. Available online at: https://louisianainternationalterminal.com/application/files/5016/7812/5443/Louisiana_International_Container_Port_final_2023_Update_v9.pdf. Accessed September 2023.

Table C-1
Summary of Estimated Emissions from Construction of the Louisiana International Terminal

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Table C-1
Summary of Estimated Emissions from Construction of the Louisiana International Terminal

Source	PM ₁₀	PM _{2.5}	VOCs	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e (tpy)
Earthmoving Fugitives	31.78	14.74	--	--	--	--	--	--	--	--	--
Construction Fugitives	470.54	47.05	--	--	--	--	--	--	--	--	--
Storage Pile Erosion Fugitives	0.08	0.01	--	--	--	--	--	--	--	--	--
Concrete Batch Plant	2.52	0.33	--	--	--	--	--	--	--	--	--
Year 2032 (estimated 12 months)	510.10	67.52	20.82	285.97	0.16	114.57	2.79	56,063.23	0.68	1.49	56,304.02
Off-Road Construction Equipment	5.11	5.37	20.80	285.96	0.15	114.57	2.79	55,112.19	0.68	1.49	55,352.16
On-Road Vehicle Engines	5.26E-05	4.65E-05	0.02	4.33E-03	4.47E-03	4.04E-06	0.01	951.04	2.72E-03	2.18E-04	951.86
Off-Road Vehicle Fugitives	0.07	0.01	--	--	--	--	--	--	--	--	--
Earthmoving Fugitives	31.78	14.74	--	--	--	--	--	--	--	--	--
Construction Fugitives	470.54	47.05	--	--	--	--	--	--	--	--	--
Storage Pile Erosion Fugitives	0.08	0.01	--	--	--	--	--	--	--	--	--
Concrete Batch Plant	2.52	0.33	--	--	--	--	--	--	--	--	--
Year 2033 (estimated 10 months)	442.87	49.24	15.43	216.80	0.09	58.69	1.66	30,438.57	0.51	1.11	30,617.33
Off-Road Construction Equipment	3.12	3.30	15.41	216.80	0.08	58.69	1.66	29,659.66	0.50	1.11	29,837.76
On-Road Vehicle Engines	4.11E-05	3.64E-05	0.02	3.40E-03	3.66E-03	2.81E-06	4.52E-03	778.90	2.22E-03	1.73E-04	779.57
Off-Road Vehicle Fugitives	40.29	4.03	--	--	--	--	--	--	--	--	--
Earthmoving Fugitives	6.05	2.52	--	--	--	--	--	--	--	--	--
Construction Fugitives	392.12	39.21	--	--	--	--	--	--	--	--	--
Storage Pile Erosion Fugitives	0.06	0.01	--	--	--	--	--	--	--	--	--
Concrete Batch Plant	1.23	0.16	--	--	--	--	--	--	--	--	--
Total Project Construction Emissions	4,532.81	618.98	253.45	2,640.33	2.34	2,513.09	82.44	607,777.12	6.97	15.21	610,234.24

^a Due to rounding, the totals may not reflect the sum of the addends.

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2025						Hours ⁽²⁾				Emission Factors (g/hp-hr) ⁽³⁾										Tons per year (tpy)													
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽²⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾				
Nonroad Construction Equipment																																	
Pavers	2270002003	Diesel	30	59%	17.7	0	0	0	0.03	0.03	0.03	0.16	1.48E-03	0.71	0.01	550.74	1.28E-03	2.81E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Pavers	2270002003	Diesel	150	59%	88.5	0	5,184	5,184	0.03	0.03	0.03	0.16	1.48E-03	0.71	0.01	550.74	1.28E-03	2.81E-03	0.01	0.01	0.01	0.08	7.49E-04	0.36	5.94E-03	278.52	6.49E-04	1.42E-03	278.74	4.42	278.74		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		1,152	1,152	0.05	0.04	0.05	0.28	1.53E-03	0.95	0.02	559.60	1.97E-03	4.31E-03	3.43E-03	3.32E-03	3.41E-03	0.02	1.15E-04	0.07	1.52E-03	41.93	1.47E-04	3.23E-04	41.97	0.01	41.97		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	0	31,104	31,104	0.05	0.04	0.05	0.28	1.53E-03	0.95	0.02	559.60	1.97E-03	4.31E-03	0.11	0.11	0.11	0.67	3.72E-03	2.31	0.05	1,358.40	4.77E-03	0.01	1,359.96	0.01	1,359.96		
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		54,432	54,432	0.14	0.14	0.29	1.19	1.97E-03	3.38	0.14	586.24	0.01	0.03	0.06	0.05	0.11	0.46	7.62E-04	1.31	0.05	226.88	4.56E-03	1.00E-02	228.37	0.01	228.37		
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	9,216	0	9,216	0.14	0.14	0.29	1.19	1.97E-03	3.38	0.14	586.24	0.01	0.03	0.02	0.02	0.04	0.16	2.58E-04	0.44	0.02	76.83	1.54E-03	3.39E-03	77.33	0.01	77.33		
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	9,216	0	9,216	0.21	0.19	4.74	253.61	4.83E-03	1.82	0.40	1111.85	0.37	0.80	0.03	0.03	0.62	33.24	6.33E-04	0.24	0.05	145.71	0.05	0.11	161.35	0.01	161.35		
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	720	720	0.17	0.17	0.24	0.95	1.75E-03	3.38	0.09	539.67	4.68E-03	0.01	8.21E-03	7.96E-03	0.01	0.05	8.35E-05	0.16	4.43E-03	25.78	2.24E-04	4.90E-04	25.86	0.01	25.86		
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	720	720	0.17	0.17	0.24	0.95	1.75E-03	3.38	0.09	539.67	4.68E-03	0.01	0.01	0.01	0.01	0.06	1.07E-04	0.21	5.69E-03	33.15	2.88E-04	6.30E-04	33.25	0.01	33.25		
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	6,720	6,720	0.17	0.17	0.24	0.95	1.75E-03	3.38	0.09	539.67	4.68E-03	0.01	0.11	0.11	0.15	0.61	1.11E-03	2.16	0.06	343.80	2.98E-03	6.54E-03	344.77	0.01	344.77		
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	360	360	0.17	0.17	0.24	0.95	1.75E-03	3.38	0.09	539.67	4.68E-03	0.01	8.79E-03	8.53E-03	0.01	0.05	8.94E-05	0.17	4.74E-03	27.63	2.40E-04	5.25E-04	27.70	0.01	27.70		
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0	0.17	0.17	0.24	0.95	1.75E-03	3.38	0.09	539.67	4.68E-03	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0	0.22	0.21	4.13	179.53	4.67E-03	2.64	0.35	1075.00	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Excavators	2270002036	Diesel	30	59%	17.7	0	8,640	8,640	0.02	0.02	0.02	0.09	1.44E-03	0.39	7.07E-03	541.90	6.49E-04	1.42E-03	2.92E-03	2.83E-03	3.07E-03	0.01	2.44E-04	0.07	1.19E-03	91.35	1.09E-04	2.40E-04	91.39	0.01	91.39		
Excavators	2270002036	Diesel	50	59%	29.5	0	4,320	4,320	0.02	0.02	0.02	0.09	1.44E-03	0.39	7.07E-03	541.90	6.49E-04	1.42E-03	2.43E-03	2.36E-03	2.56E-03	0.01	2.03E-04	0.05	9.93E-04	76.13	9.12E-05	2.00E-04	76.16	0.01	76.16		
Excavators	2270002036	Diesel	150	59%	88.5	0	2,160	2,160	0.02	0.02	0.02	0.09	1.44E-03	0.39	7.07E-03	541.90	6.49E-04	1.42E-03	3.65E-03	3.54E-03	3.84E-03	0.02	3.04E-04	0.08	1.49E-03	114.19	1.37E-04	3.00E-04	114.23	0.01	114.23		
Excavators	2270002036	Diesel	300	59%	177.0	0	5,184	5,184	0.02	0.02	0.02	0.09	1.44E-03	0.39	7.07E-03	541.90	6.49E-04	1.42E-03	0.02	0.02	0.02	0.09	1.46E-03	0.39	7.15E-03	548.10	1.65E-04	1.44E-03	548.32	0.01	548.32		
Excavators	2270002036	Diesel	400	59%	236.0	0	28,512	28,512	0.02	0.02	0.02	0.09	1.44E-03	0.39	7.07E-03	541.90	6.49E-04	1.42E-03	0.13	0.12	0.14	0.64	0.01	2.88	0.05	4,019.42	4.81E-03	0.01	4,020.99	0.01	4,020.99		
Excavators	2270002036	Diesel	424	59%	250.2	3,072	0	3,072	0.02	0.02	0.02	0.09	1.44E-03	0.39	7.07E-03	541.90	6.49E-04	1.42E-03	0.01	0.01	0.02	0.07	1.22E-03	0.33	5.99E-03	459.05	5.50E-04	1.21E-03	459.23	0.01	459.23		
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	384	0	384	0.06	0.06	0.09	0.47	1.63E-03	2.05	0.04	591.87	4.33E-03	9.49E-03	5.56E-03	5.40E-03	9.07E-03	0.05	1.57E-04	0.20	4.05E-03	56.91	4.16E-04	9.12E-04	57.04	0.01	57.04		
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	384	0	384	0.13	0.12	4.00	250.83	4.36E-03	1.65	0.34	1003.54	0.31	0.68	3.79E-04	3.49E-04	0.01	0.75	1.31E-05	4.95E-03	1.02E-03	3.01	9.24E-04	2.03E-03	3.31	0.01	3.31		
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	0	0	0	0.27	0.26	0.41	1.69	1.89E-03	3.96	0.16	563.72	8.56E-03	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	0	0	0	0.16	0.15	4.16	258.19	4.75E-03	1.70	0.35	1093.70	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,160	2,160	0.03	0.03	0.04	0.16	1.47E-03	0.63	0.01	533.25	1.11E-03	2.42E-03	6.12E-03	5.93E-03	7.39E-03	0.03	3.01E-04	0.13	2.99E-03	109.19	2.26E-04	4.96E-04	109.26	0.01	109.26		
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	8,640	8,640	0.03	0.03	0.04	0.16	1.47E-03	0.63	0.01	533.25	1.11E-03	2.42E-03	0.03	0.03	0.03	0.14	1.33E-03	0.57	0.01	480.44	9.96E-04	2.18E-03	480.76	0.01	480.76		
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	6,480	6,480	0.03	0.03	0.04	0.16	1.47E-03	0.63	0.01	533.25	1.11E-03	2.42E-03	0.05	0.04	0.06	0.24	2.26E-03	0.96	0.02	818.93	1.70E-03	3.72E-03	819.48	0.01	819.48		
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	12,096	0	12,096	0.03	0.03	0.04	0.16	1.47E-03	0.63	0.01	533.25	1.11E-03	2.42E-03	0.17	0.17	0.21	0.91	8.44E-03	3.60	0.08	3,057.33	6.34E-03	0.01	3,059.40	0.01	3,059.40		
Graders	2270002048	Diesel	250	59%	147.5	0	0	0	0.02	0.02	0.02	0.07	1.43E-03	0.24	5.63E-03	537.67	4.77E-04	1.05E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	106,272	106,272	0.02	0.02	0.03	0.08	1.43E-03	1.41	0.01	536.75	1.08E-03	2.36E-03	0.32	0.31	0.44	1.26	0.02	21.91	0.20	8,346.95	0.02	0.04	8,352.41	0.01	8,352.41		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	4,320	4,320	0.02	0.02	0.03	0.08	1.43E-03	1.41	0.01	536.75	1.08E-03	2.36E-03	0.03	0.03	0.04	0.10	1.80E-03	1.78	0.02	678.61	1.36E-03	2.98E-03	679.62	0.01	679.62		
Utility Truck	2270002051	Diesel	350	59%	206.5	0	35,424	35,424	0.02	0.02	0.03	0.08	1.43E-03	1.41	0.01	536.75	1.08E-03	2.36E-03	0.16	0.16	0.23	0.65	0.01	11.36	0.10	4,328.05	8.67E-03	0.02	4,330.88	0.01	4,330.88		
Water Truck	2270002051	Diesel	400	59%	236.0	0	27,648	27,648	0.02	0.02	0.03	0.08	1.43E-03	1.41	0.01	536.75	1.08E-03	2.36E-03	0.15	0.14	0.21	0.58	0.01	10.13	0.09	3,860.56	7.73E-03	0.02	3,863.08	0.01	3,863.08		
Water Truck	2270002051	Diesel	200	59%	118.0	0	0	0	0.02	0.02	0.03	0.08	1.43E-03	1.41	0.01	536.75	1.08E-03	2.36E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Rough terrain forklifts	2270002057	Diesel																															

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2026						Hours ⁽²⁾		Emission Factors (g/hp-hr) ⁽³⁾																Tons per year (tpy)									
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾				
Nonroad Construction Equipment																																	
Pavers	2270002003	Diesel	30	59%	17.7	2,016	0	2,016	0.02	0.02	0.02	0.12	1.47E-03	0.65	9.76E-03	550.76	1.12E-03	2.45E-03	8.22E-04	8.47E-04	9.29E-04	4.74E-03	5.78E-05	0.03	3.84E-04	21.66	4.39E-05	9.62E-05	21.68				
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912	0.02	0.02	0.02	0.12	1.47E-03	0.65	9.76E-03	550.76	1.12E-03	2.45E-03	0.01	0.01	0.02	0.08	9.91E-04	0.44	6.58E-03	371.37	1.53E-04	1.65E-03	371.62				
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		13,824	13,824	0.03	0.04	0.04	0.22	1.52E-03	0.88	0.02	559.61	1.72E-03	3.78E-03	0.03	0.03	0.04	0.20	1.37E-03	0.79	0.02	503.13	1.55E-03	3.40E-03	503.63				
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	288	41,472	41,760	0.03	0.04	0.04	0.22	1.52E-03	0.88	0.02	559.61	1.72E-03	3.78E-03	0.11	0.12	0.13	0.71	4.95E-03	2.86	0.06	1,823.84	5.62E-03	0.01	1,825.68				
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576	0.13	0.14	0.29	1.16	1.96E-03	3.33	0.13	586.26	0.01	0.03	0.07	0.07	0.15	0.60	1.01E-03	1.72	0.07	302.52	6.01E-03	0.01	304.48				
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648	0.13	0.14	0.29	1.16	1.96E-03	3.33	0.13	586.26	0.01	0.03	0.05	0.05	0.11	0.46	7.71E-04	1.31	0.05	230.49	4.58E-03	0.01	231.98				
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648	0.19	0.21	0.44	253.60	4.83E-03	1.82	0.40	1111.85	0.37	0.80	0.08	0.08	1.86	99.70	1.90E-03	0.72	0.16	437.13	1.14	0.32	484.06				
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	2,880	2,880	0.15	0.15	0.22	0.77	1.72E-03	3.11	0.08	539.74	4.44E-03	9.74E-03	0.03	0.03	0.04	0.17	3.29E-04	0.60	0.02	103.15	8.49E-04	1.86E-03	103.43				
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	2,880	2,880	0.15	0.15	0.22	0.87	1.72E-03	3.11	0.08	539.74	4.44E-03	9.74E-03	0.04	0.04	0.05	0.21	4.23E-04	0.77	0.02	132.62	1.09E-03	2.39E-03	132.98				
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	17,280	17,280	0.15	0.15	0.22	0.87	1.72E-03	3.11	0.08	539.74	4.44E-03	9.74E-03	0.25	0.25	0.35	1.42	2.82E-03	5.10	0.14	884.16	7.77E-03	0.02	886.53				
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	1,440	1,440	0.15	0.15	0.22	0.87	1.72E-03	3.11	0.08	539.74	4.44E-03	9.74E-03	0.03	0.03	0.04	0.18	3.52E-04	0.64	0.02	110.52	9.09E-04	1.99E-03	110.82				
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0	0.15	0.15	0.22	0.87	1.72E-03	3.11	0.08	539.74	4.44E-03	9.74E-03	--	--	--	--	--	--	--	--	--	--	--	--			
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0	0.21	0.22	0.40	178.31	4.67E-03	2.55	0.35	1073.84	0.32	0.69	--	--	--	--	--	--	--	--	--	--	--	--			
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520	0.01	0.01	0.02	0.07	1.44E-03	0.36	6.31E-03	541.91	5.81E-04	1.27E-03	3.27E-03	3.37E-03	3.74E-03	0.02	3.24E-04	0.08	1.42E-03	121.80	1.31E-04	2.86E-04	121.84				
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760	0.01	0.01	0.02	0.07	1.44E-03	0.36	6.31E-03	541.91	5.81E-04	1.27E-03	2.72E-03	2.81E-03	3.12E-03	0.01	2.70E-04	0.07	1.18E-03	101.50	1.09E-04	2.39E-04	101.54				
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880	0.01	0.01	0.02	0.07	1.44E-03	0.36	6.31E-03	541.91	5.81E-04	1.27E-03	4.09E-03	4.21E-03	4.68E-03	0.02	4.05E-04	0.10	1.77E-03	152.25	1.63E-04	3.58E-04	152.31				
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912	0.01	0.01	0.02	0.07	1.44E-03	0.36	6.31E-03	541.91	5.81E-04	1.27E-03	0.02	0.02	0.02	0.10	1.94E-03	0.49	8.51E-03	730.81	7.84E-04	1.72E-03	731.07				
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016	0.01	0.01	0.02	0.07	1.44E-03	0.36	6.31E-03	541.91	5.81E-04	1.27E-03	0.14	0.15	0.16	0.72	0.01	3.57	0.06	5,359.27	7.57E-03	0.01	5,361.15				
Excavators	2270002036	Diesel	424	59%	250.2	9,216	0	9,216	0.01	0.01	0.02	0.07	1.44E-03	0.36	6.31E-03	541.91	5.81E-04	1.27E-03	0.04	0.04	0.04	0.19	3.66E-03	0.92	0.02	1,377.17	4.84E-03	3.24E-03	1,377.65				
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	1,152	0	1,152	0.05	0.05	0.09	0.42	1.62E-03	2.00	0.04	591.89	4.19E-03	9.19E-03	0.01	0.01	0.03	0.12	4.68E-04	0.58	0.01	170.73	1.21E-03	2.65E-03	171.12				
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	1,152	0	1,152	0.12	0.13	0.40	250.83	4.36E-03	1.65	0.34	1003.53	0.31	0.68	1.05E-03	1.14E-03	0.04	2.26	3.92E-05	0.01	3.07E-03	9.02	2.77E-03	6.08E-03	9.53				
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	192	0	192	0.24	0.25	0.39	1.58	1.89E-03	3.76	0.16	563.79	8.71E-03	0.02	0.01	0.01	0.02	0.09	1.02E-04	0.21	8.48E-03	30.79	4.75E-04	1.04E-03	30.94				
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	192	0	192	0.15	0.16	0.44	257.91	4.75E-03	1.70	0.35	1093.72	0.32	0.70	3.19E-03	3.47E-03	0.09	5.63	1.04E-04	0.04	7.71E-03	23.89	6.98E-03	0.02	26.17				
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880	0.02	0.02	0.03	0.13	1.46E-03	0.54	0.01	533.26	9.09E-04	1.99E-03	6.62E-03	6.82E-03	8.12E-03	0.04	3.98E-04	0.15	3.23E-03	145.59	2.48E-04	5.44E-04	145.67				
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520	0.02	0.02	0.03	0.13	1.46E-03	0.54	0.01	533.26	9.09E-04	1.99E-03	0.03	0.03	0.04	0.16	1.75E-03	0.64	0.01	640.60	1.09E-03	2.39E-03	640.96				
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640	0.02	0.02	0.03	0.13	1.46E-03	0.54	0.01	533.26	9.09E-04	1.99E-03	0.05	0.05	0.06	0.27	2.99E-03	1.10	0.02	1,091.94	1.86E-03	4.08E-03	1,092.55				
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	36,288	0	36,288	0.02	0.02	0.03	0.13	1.46E-03	0.54	0.01	533.26	9.09E-04	1.99E-03	0.42	0.43	0.51	2.24	0.03	9.20	0.20	9,172.38	0.02	0.03	9,177.39				
Graders	2270002048	Diesel	250	59%	147.5	192	0	192	0.01	0.01	0.01	0.06	1.43E-03	0.21	4.65E-03	537.67	3.89E-04	8.53E-04	4.18E-04	4.31E-04	4.27E-04	1.87E-03	4.46E-05	6.60E-03	1.45E-04	16.78	1.21E-05	2.66E-05	16.79				
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696	0.02	0.02	0.03	0.07	1.42E-03	1.39	0.01	536.75	1.02E-03	2.24E-03	0.38	0.40	0.57	1.48	0.03	28.92	0.25	11,129.34	0.02	0.05	11,136.25				
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760	0.02	0.02	0.03	0.07	1.42E-03	1.39	0.01	536.75	1.02E-03	2.24E-03	0.03	0.03	0.05	0.12	2.40E-03	2.35	0.02	904.82	1.72E-03	3.78E-03	905.39				
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232	0.02	0.02	0.03	0.07	1.42E-03	1.39	0.01	536.75	1.02E-03	2.24E-03	0.20	0.21	0.29	0.77	0.02	15.00	0.13	5,770.77	0.01	0.02	5,774.35				
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864	0.02	0.02	0.03	0.07	1.42E-03	1.39	0.01	536.75	1.02E-03	2.24E-03	0.18	0.18	0.26	0.68	0.01	13.38	0.12	5,147.44	9.81E-03	0.02	5,150.64				
Water Truck	2270002051	Diesel	200	59%	118.0	192	0	192	0.02	0.02	0.03	0.07	1.42E-03	1.39	0.01	536.75	1.02E-03	2.24E-03	4.63E-04	4.78E-04	6.84E-04	1.78E-03	3.55E-05	0.03	3.00E-04	13.40	2.55E-05	5.60E-05	13.41				
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824	0.04	0.04	0.04	0.28	1.53E-03	0.97	0.02	569.59	1.46E-03	3.20E-03	0.08	0.08	0.07	0.50	2.78E-03	1.74	0.03								

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2027										Hours ⁽²⁾										Emission Factors (g/hp-hr) ⁽³⁾										Tons per year (tpy)									
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total		PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾									
Nonroad Construction Equipment																																							
Pavers	2270002003	Diesel	30	59%	17.7	3,456	0	3,456		0.02	0.02	0.02	0.10	1.46E-03	0.63	8.78E-03	550.76	1.03E-03	2.27E-03	1.19E-03	1.22E-03	1.45E-03	6.96E-03	9.88E-05	0.04	5.92E-04	37.14	6.97E-05	1.53E-04	37.16									
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912		0.02	0.02	0.02	0.10	1.46E-03	0.63	8.78E-03	550.76	1.03E-03	2.27E-03	0.01	0.01	0.01	0.07	9.88E-04	0.42	5.92E-03	371.38	6.97E-04	1.53E-03	371.61									
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		13,824	13,824		0.03	0.03	0.03	0.18	1.51E-03	0.82	0.02	559.63	1.56E-03	3.41E-03	0.02	0.02	0.03	0.16	1.36E-03	0.74	0.01	503.14	1.40E-03	3.07E-03	503.60									
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	1,152	41,472	42,624		0.03	0.03	0.03	0.18	1.51E-03	0.82	0.02	559.63	1.56E-03	3.41E-03	0.09	0.09	0.12	0.58	5.02E-03	2.73	0.05	1,861.62	5.17E-03	0.01	1,863.30									
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576		0.13	0.13	0.28	1.13	1.95E-03	3.28	0.13	586.28	0.01	0.03	0.07	0.07	0.15	0.58	1.01E-03	1.69	0.07	302.53	5.93E-03	0.01	304.46									
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648		0.13	0.13	0.28	1.13	1.95E-03	3.28	0.13	586.28	0.01	0.03	0.05	0.05	0.11	0.44	7.69E-04	1.29	0.05	230.50	4.52E-03	9.90E-03	231.97									
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648		0.19	0.21	4.74	253.60	4.83E-03	1.82	0.40	1,111.86	0.37	0.80	0.08	0.08	1.86	99.70	1.90E-03	0.72	0.16	437.13	0.14	0.32	484.06									
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	2,880	2,880		0.13	0.14	0.19	0.77	1.69E-03	2.81	0.08	539.81	4.01E-03	8.79E-03	0.03	0.03	0.04	0.15	3.22E-04	0.54	0.01	103.17	7.66E-04	1.68E-03	103.42									
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	2,880	2,880		0.13	0.14	0.19	0.77	1.69E-03	2.81	0.08	539.81	4.01E-03	8.79E-03	0.03	0.03	0.05	0.19	4.14E-04	0.69	0.02	132.64	9.85E-04	2.16E-03	132.96									
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	17,280	17,280		0.13	0.14	0.19	0.77	1.69E-03	2.81	0.08	539.81	4.01E-03	8.79E-03	0.22	0.22	0.31	1.26	2.76E-03	4.60	0.12	884.28	6.57E-03	0.01	886.42									
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	1,440	1,440		0.13	0.14	0.19	0.77	1.69E-03	2.81	0.08	539.81	4.01E-03	8.79E-03	0.03	0.03	0.04	0.16	3.45E-04	0.58	0.02	110.53	8.21E-04	1.80E-03	110.80									
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0		0.13	0.14	0.19	0.77	1.69E-03	2.81	0.08	539.81	4.01E-03	8.79E-03	--	--	--	--	--	--	--	--	--	--	--	--								
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0		0.21	0.22	4.04	176.70	4.66E-03	2.45	0.34	1,072.30	0.31	0.68	--	--	--	--	--	--	--	--	--	--	--	--								
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520		0.01	0.01	0.02	0.06	1.44E-03	0.34	5.67E-03	541.91	5.24E-04	1.15E-03	2.84E-03	2.93E-03	3.44E-03	0.01	3.23E-04	0.08	1.27E-03	121.80	1.18E-04	2.58E-04	121.84									
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760		0.01	0.01	0.02	0.06	1.44E-03	0.34	5.67E-03	541.91	5.24E-04	1.15E-03	2.37E-03	2.44E-03	2.87E-03	0.01	2.69E-04	0.06	1.06E-03	101.50	9.81E-05	2.15E-04	101.53									
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880		0.01	0.01	0.02	0.06	1.44E-03	0.34	5.67E-03	541.91	5.24E-04	1.15E-03	3.55E-03	3.66E-03	4.30E-03	0.02	4.04E-04	0.10	1.59E-03	152.25	1.47E-04	3.23E-04	152.30									
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912		0.01	0.01	0.02	0.06	1.44E-03	0.34	5.67E-03	541.91	5.24E-04	1.15E-03	0.02	0.02	0.02	0.08	1.94E-03	0.46	7.65E-03	730.82	7.06E-04	1.55E-03	731.05									
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016		0.01	0.01	0.02	0.06	1.44E-03	0.34	5.67E-03	541.91	5.24E-04	1.15E-03	0.12	0.13	0.15	0.62	0.01	3.35	0.06	5,359.31	5.18E-03	0.01	5,361.00									
Excavators	2270002036	Diesel	424	59%	250.2	11,136	0	11,136		0.01	0.01	0.02	0.06	1.44E-03	0.34	5.67E-03	541.91	5.24E-04	1.15E-03	0.04	0.04	0.05	0.19	4.41E-03	1.04	0.02	1,664.09	1.61E-03	3.53E-03	1,664.62									
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	2,016	0	2,016		0.04	0.04	0.08	0.38	1.61E-03	1.96	0.04	591.90	4.07E-03	8.92E-03	0.02	0.02	0.04	0.19	8.14E-04	0.99	0.02	298.79	2.05E-03	4.50E-03	299.46									
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	2,016	0	2,016		0.12	0.13	4.40	250.83	4.36E-03	1.65	0.34	1,003.54	0.31	0.68	1.83E-03	1.99E-03	0.06	3.95	6.86E-05	0.03	5.36E-03	15.79	4.85E-03	0.01	17.37									
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	576	0	576		0.22	0.23	0.36	1.46	1.85E-03	3.53	0.15	563.85	8.68E-03	0.02	0.04	0.04	0.06	0.24	3.04E-04	0.58	0.02	92.37	1.42E-03	3.12E-03	92.83									
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	576	0	576		0.15	0.16	4.14	257.84	4.75E-03	1.69	0.35	1,093.67	0.32	0.70	9.59E-03	0.01	0.27	16.89	3.11E-04	0.11	0.02	71.66	0.02	0.05	78.49									
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880		0.02	0.02	0.02	0.11	1.45E-03	0.46	9.50E-03	533.28	7.39E-04	1.62E-03	5.42E-03	5.59E-03	6.70E-03	0.03	3.95E-04	0.12	2.59E-03	145.60	2.02E-04	4.42E-04	145.66									
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520		0.02	0.02	0.02	0.11	1.45E-03	0.46	9.50E-03	533.28	7.39E-04	1.62E-03	0.02	0.02	0.03	0.13	1.74E-03	0.55	0.01	640.62	8.87E-04	1.95E-03	640.91									
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640		0.02	0.02	0.02	0.11	1.45E-03	0.46	9.50E-03	533.28	7.39E-04	1.62E-03	0.04	0.04	0.05	0.22	2.96E-03	0.93	0.02	1,091.97	1.51E-03	3.32E-03	1,092.46									
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	44,928	0	44,928		0.02	0.02	0.02	0.11	1.45E-03	0.46	9.50E-03	533.28	7.39E-04	1.62E-03	0.42	0.44	0.52	2.25	0.03	9.70	0.20	11,356.50	0.02	0.03	11,361.63									
Graders	2270002048	Diesel	250	59%	147.5	576	0	576		0.01	0.01	0.01	0.05	1.42E-03	0.19	4.05E-03	537.67	3.40E-04	7.33E-04	1.10E-03	1.13E-03	1.16E-03	4.76E-03	1.33E-04	0.02	3.79E-04	50.35	3.13E-05	6.86E-05	50.36									
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696		0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.75	9.84E-04	2.16E-03	0.37	0.38	0.55	1.34	0.03	28.71	0.24	11,129.39	0.02	0.04	11,136.05									
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760		0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.75	9.84E-04	2.16E-03	0.03	0.03	0.04	0.11	2.39E-03	2.33	0.02	904.83	1.66E-03	3.64E-03	905.37									
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232		0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.75	9.84E-04	2.16E-03	0.19	0.20	0.28	0.69	0.02	14.89	0.12	5,770.80	0.01	0.02	5,774.25									
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864		0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.75	9.84E-04	2.16E-03	0.17	0.17	0.25	0.62	0.01	13.28	0.11	5,147.47	9.94E-03	0.02	5,150.55									
Water Truck	2270002051	Diesel	200	59%	118.0	576	0	576		0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.75	9.84E-04	2.16E-03	1.32E-03	1.37E-03	1.98E-03	4.83E-03	1.06E-04	0.10	8.69E-04	40.21	3.73E-05	1.62E-04	40.24									
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824		0.04	0.04	0.03	0.22	1.54E-03	0.90	0.01	569.60	1.25E-03	2.73E-03	0.06	0.																		

Table C-2
Louisiana International Terminal
Off-Road Construction Emissions
St. Bernard Parish

Construction Year: 2028									Hours ⁽²⁾		Emission Factors (g/hp-hr) ⁽³⁾										Tons per year (tpy)										
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾		
Nonroad Construction Equipment																															
Pavers	2270002003	Diesel	30	59%	17.7	3,456	0	3,456	0.02	0.02	0.02	0.09	1.46E-03	0.61	8.21E-03	550.77	9.85E-04	2.16E-03	1.06E-03	1.09E-03	1.37E-03	6.27E-03	9.85E-05	0.04	5.54E-04	37.14	6.64E-05	1.46E-04	37.16		
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912	0.02	0.02	0.02	0.09	1.46E-03	0.61	8.21E-03	550.77	9.85E-04	2.16E-03	0.01	0.01	0.01	0.06	9.85E-04	0.41	5.54E-03	371.38	6.64E-04	1.46E-03	371.60		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		6,912	6,912	0.02	0.02	0.03	0.16	1.50E-03	0.80	0.01	559.63	1.48E-03	3.25E-03	0.01	0.01	0.01	0.07	6.76E-04	0.36	6.42E-03	251.57	6.66E-04	1.46E-03	251.79		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	864	41,472	42,336	0.02	0.02	0.03	0.16	1.50E-03	0.80	0.01	559.63	1.48E-03	3.25E-03	0.08	0.08	0.11	0.52	4.97E-03	2.63	0.05	1,849.05	4.90E-03	0.01	1,850.65		
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576	0.12	0.13	0.28	1.11	1.95E-03	3.26	0.13	586.29	0.01	0.02	0.06	0.07	0.14	0.57	1.01E-03	1.68	0.07	302.53	5.88E-03	0.01	304.45		
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648	0.12	0.13	0.28	1.11	1.95E-03	3.26	0.13	586.29	0.01	0.02	0.05	0.05	0.11	0.44	1.01E-03	1.28	0.05	230.50	4.48E-03	9.83E-03	231.96		
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648	0.19	0.21	4.74	253.60	4.83E-03	1.82	0.40	1111.86	0.37	0.80	0.08	0.08	1.86	99.70	1.90E-03	0.72	0.16	437.13	0.14	0.32	484.06		
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	1,440	1,440	0.11	0.12	0.17	0.67	1.65E-03	2.49	0.06	539.89	3.48E-03	7.63E-03	0.01	0.01	0.02	0.06	1.58E-04	0.24	6.20E-03	51.59	3.32E-04	7.29E-04	51.70		
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	1,440	1,440	0.11	0.12	0.17	0.67	1.65E-03	2.49	0.06	539.89	3.48E-03	7.63E-03	0.01	0.01	0.02	0.08	2.03E-04	0.31	7.97E-03	66.33	4.27E-04	9.37E-04	66.47		
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	15,840	15,840	0.11	0.12	0.17	0.67	1.65E-03	2.49	0.06	539.89	3.48E-03	7.63E-03	0.17	0.18	0.25	1.01	2.48E-03	3.74	0.10	810.70	5.22E-03	0.01	812.40		
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	720	720	0.11	0.12	0.17	0.67	1.65E-03	2.49	0.06	539.89	3.48E-03	7.63E-03	0.01	0.01	0.02	0.07	1.69E-04	0.25	6.64E-03	55.27	3.56E-04	7.81E-04	55.39		
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0	0.11	0.12	0.17	0.67	1.65E-03	2.49	0.06	539.89	3.48E-03	7.63E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0	0.21	0.22	3.99	174.65	4.65E-03	2.31	0.34	1070.36	0.31	0.67	--	--	--	--	--	--	--	--	--	--	--	--	
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520	0.01	0.01	0.01	0.05	1.43E-03	0.32	5.21E-03	541.91	4.83E-04	1.06E-03	2.52E-03	2.60E-03	3.22E-03	0.01	3.22E-04	0.07	1.17E-03	121.80	1.09E-04	2.38E-04	121.84		
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760	0.01	0.01	0.01	0.05	1.43E-03	0.32	5.21E-03	541.91	4.83E-04	1.06E-03	2.10E-03	2.17E-03	2.69E-03	0.01	2.69E-04	0.06	9.76E-04	101.50	9.05E-05	1.98E-04	101.53		
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880	0.01	0.01	0.01	0.05	1.43E-03	0.32	5.21E-03	541.91	4.83E-04	1.06E-03	3.15E-03	3.25E-03	4.03E-03	0.02	4.03E-04	0.09	1.46E-03	152.25	1.36E-04	2.98E-04	152.30		
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912	0.01	0.01	0.01	0.05	1.43E-03	0.32	5.21E-03	541.91	4.83E-04	1.06E-03	0.02	0.02	0.02	0.07	1.93E-03	0.44	7.03E-03	730.82	6.52E-04	1.43E-03	731.03		
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016	0.01	0.01	0.01	0.05	1.43E-03	0.32	5.21E-03	541.91	4.83E-04	1.06E-03	0.11	0.11	0.14	0.54	0.01	3.20	0.05	5,359.34	4.78E-03	0.01	5,360.90		
Excavators	2270002036	Diesel	424	59%	250.2	4,608	0	4,608	0.01	0.01	0.01	0.05	1.43E-03	0.32	5.21E-03	541.91	4.83E-04	1.06E-03	0.01	0.01	0.02	0.07	1.82E-03	0.41	6.62E-03	688.59	6.14E-04	1.35E-03	688.79		
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	1,152	0	1,152	0.04	0.04	0.08	0.35	1.61E-03	1.93	0.04	591.92	3.96E-03	8.69E-03	0.01	0.01	0.02	0.10	4.64E-04	0.56	0.01	170.74	1.14E-03	2.51E-03	171.11		
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	1,152	0	1,152	0.12	0.13	4.40	250.83	4.36E-03	1.65	0.34	1003.54	0.31	0.68	1.05E-03	1.14E-03	0.04	2.26	3.92E-05	0.01	3.07E-03	9.02	2.77E-03	6.08E-03	9.93		
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	432	0	432	0.20	0.20	0.34	1.34	1.83E-03	3.27	0.14	563.93	8.52E-03	0.02	0.02	0.02	0.04	0.16	2.24E-04	0.40	0.02	69.28	1.05E-03	2.30E-03	69.63		
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	432	0	432	0.15	0.16	4.14	257.79	4.75E-03	1.69	0.35	1093.62	0.32	0.70	2.05E-03	7.83E-03	0.20	12.67	2.34E-04	0.08	0.02	53.74	0.02	0.03	58.87		
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880	0.02	0.02	0.02	0.09	1.44E-03	0.40	0.09	7.94E-03	533.29	6.26E-04	1.37E-03	4.59E-03	4.73E-03	5.74E-03	0.02	3.92E-04	0.11	2.17E-03	145.60	1.71E-04	3.74E-04	145.65	
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520	0.02	0.02	0.02	0.09	1.44E-03	0.40	0.09	7.94E-03	533.29	6.26E-04	1.37E-03	0.02	0.02	0.03	0.11	1.73E-03	0.48	9.54E-03	640.63	7.51E-04	1.65E-03	640.88	
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640	0.02	0.02	0.02	0.09	1.44E-03	0.40	0.09	7.94E-03	533.29	6.26E-04	1.37E-03	0.03	0.04	0.04	0.18	2.94E-03	0.81	0.02	1,091.99	1.28E-03	2.81E-03	1,092.41	
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	25,920	0	25,920	0.02	0.02	0.02	0.09	1.44E-03	0.40	0.09	7.94E-03	533.29	6.26E-04	1.37E-03	0.21	0.21	0.26	1.08	0.02	4.88	0.10	6,551.94	7.69E-03	0.02	6,554.45	
Graders	2270002048	Diesel	250	59%	147.5	432	0	432	0.01	0.01	0.01	0.04	1.42E-03	0.17	3.61E-03	537.68	2.93E-04	6.42E-04	7.34E-04	7.96E-04	8.08E-04	3.08E-03	9.99E-05	0.01	2.53E-04	37.77	2.06E-05	4.51E-05	37.77		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696	0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.76	9.57E-04	2.10E-03	0.35	0.36	0.54	1.23	0.03	28.56	0.23	11,129.44	0.02	0.04	11,135.91		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760	0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.76	9.57E-04	2.10E-03	0.03	0.03	0.04	0.10	2.39E-03	2.32	0.02	904.83	1.61E-03	3.54E-03	905.36		
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232	0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.76	9.57E-04	2.10E-03	0.18	0.19	0.28	0.64	0.02	14.81	0.12	5,770.82	0.01	0.02	5,774.18		
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864	0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.76	9.57E-04	2.10E-03	0.16	0.17	0.25	0.57	0.01	13.21	0.11	5,147.49	9.17E-03	0.02	5,150.48		
Water Truck	2270002051	Diesel	200	59%	118.0	576	0	576	0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.76	9.57E-04	2.10E-03	1.28E-03	1.32E-03	1.94E-03	4.44E-03	1.06E-04	0.10	8.46E-04	40.21	1.71E-05	1.57E-04	40.24		
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824	0.03	0.03	0.02	0.16	1.52E-03	0.83	0.01	569.62	1.02E-03	2.24E-03	0.05	0.05	0.04	0.30	2.74E-03	1.49	0.02	1,024.25					

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2029						Hours ⁽²⁾			Emission Factors (g/hp-hr) ⁽³⁾													Tons per year (tpy)										
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾			
Nonroad Construction Equipment																																
Pavers	2270002003	Diesel	30	59%	17.7	3,456	0	3,456	0.01	0.01	0.02	0.09	1.46E-03	0.59	7.76E-03	550.77	9.46E-04	2.07E-03	9.61E-04	9.91E-04	1.31E-03	5.74E-03	9.84E-05	0.04	5.23E-04	37.14	6.38E-05	1.40E-04	37.16			
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912	0.01	0.01	0.02	0.09	1.46E-03	0.59	7.76E-03	550.77	9.46E-04	2.07E-03	9.61E-03	9.91E-03	0.01	0.06	9.84E-04	0.40	5.23E-03	371.38	6.38E-04	1.40E-03	371.59			
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		0	0	0.02	0.02	0.03	0.14	1.50E-03	0.78	0.01	559.64	1.44E-03	3.15E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	0	41,472	41,472	0.02	0.02	0.03	0.14	1.50E-03	0.78	0.01	559.64	1.44E-03	3.15E-03	0.07	0.07	0.10	0.47	4.85E-03	2.52	0.04	1,811.33	4.65E-03	0.01	1,812.85			
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576	0.12	0.12	0.27	1.10	1.95E-03	3.24	0.13	586.30	0.01	0.02	0.06	0.06	0.14	0.57	1.01E-03	1.67	0.07	302.53	5.85E-03	0.01	304.44			
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648	0.12	0.12	0.27	1.10	1.95E-03	3.24	0.13	586.30	0.01	0.02	0.05	0.05	0.11	0.43	7.66E-04	1.27	0.05	230.50	4.46E-03	9.78E-03	231.96			
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648	0.19	0.21	4.74	253.59	4.83E-03	1.82	0.40	1111.86	0.37	0.80	0.08	0.08	1.86	99.70	1.90E-03	0.72	0.16	437.13	0.14	0.32	484.05			
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	0	0	0.10	0.10	0.14	0.57	1.61E-03	2.16	0.05	539.96	2.90E-03	6.36E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	0	0	0.10	0.10	0.14	0.57	1.61E-03	2.16	0.05	539.96	2.90E-03	6.36E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	7,200	7,200	0.10	0.10	0.14	0.57	1.61E-03	2.16	0.05	539.96	2.90E-03	6.36E-03	0.07	0.07	0.10	0.39	1.10E-03	1.47	0.04	368.55	1.98E-03	4.34E-03	369.20			
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	0	0	0.10	0.10	0.14	0.57	1.61E-03	2.16	0.05	539.96	2.90E-03	6.36E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0	0.10	0.10	0.14	0.57	1.61E-03	2.16	0.05	539.96	2.90E-03	6.36E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0	0.20	0.22	3.94	172.89	4.65E-03	2.21	0.34	1069.02	0.30	0.67	--	--	--	--	--	--	--	--	--	--	--	--		
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520	0.01	0.01	0.01	0.05	1.43E-03	0.32	4.94E-03	541.91	4.59E-04	1.01E-03	2.33E-03	2.40E-03	3.10E-03	0.01	3.22E-04	0.07	1.11E-03	121.80	1.03E-04	2.26E-04	121.84			
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760	0.01	0.01	0.01	0.05	1.43E-03	0.32	4.94E-03	541.91	4.59E-04	1.01E-03	1.94E-03	2.00E-03	2.58E-03	9.44E-03	2.68E-04	0.06	9.25E-04	101.50	8.61E-05	1.89E-04	101.53			
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880	0.01	0.01	0.01	0.05	1.43E-03	0.32	4.94E-03	541.91	4.59E-04	1.01E-03	2.91E-03	3.00E-03	3.87E-03	0.01	4.02E-04	0.09	1.39E-03	152.25	1.29E-04	2.83E-04	152.30			
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912	0.01	0.01	0.01	0.05	1.43E-03	0.32	4.94E-03	541.91	4.59E-04	1.01E-03	0.01	0.01	0.02	0.07	1.93E-03	0.43	6.66E-03	730.82	6.20E-04	1.36E-03	731.02			
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016	0.01	0.01	0.01	0.05	1.43E-03	0.32	4.94E-03	541.91	4.59E-04	1.01E-03	0.10	0.11	0.14	0.50	0.01	3.12	0.05	5,359.36	4.54E-03	9.96E-03	5,360.84			
Excavators	2270002036	Diesel	424	59%	250.2	0	0	0	0.01	0.01	0.01	0.05	1.43E-03	0.32	4.94E-03	541.91	4.59E-04	1.01E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	0	0	0	0.03	0.04	0.07	0.32	1.60E-03	1.89	0.03	591.93	3.87E-03	8.48E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	0	0	0	0.12	0.13	4.00	250.83	4.36E-03	1.65	0.34	1003.54	0.31	0.68	--	--	--	--	--	--	--	--	--	--	--	--		
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	0	0	0	0.17	0.18	0.31	1.22	1.79E-03	2.99	0.13	564.01	8.19E-03	0.02	--	--	--	--	--	--	--	--	--	--	--	--		
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	0	0	0	0.15	0.16	4.14	257.77	4.75E-03	1.69	0.35	1093.59	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--		
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880	0.01	0.02	0.02	0.08	1.43E-03	0.35	6.94E-03	533.30	5.51E-04	1.21E-03	4.05E-03	4.17E-03	5.13E-03	0.02	3.91E-04	0.10	1.89E-03	145.60	1.50E-04	3.30E-04	145.65			
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520	0.01	0.02	0.02	0.08	1.43E-03	0.35	6.94E-03	533.30	5.51E-04	1.21E-03	0.02	0.02	0.02	0.09	1.72E-03	0.43	8.33E-03	640.64	6.62E-04	1.45E-03	640.86			
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640	0.01	0.02	0.02	0.08	1.43E-03	0.35	6.94E-03	533.30	5.51E-04	1.21E-03	0.03	0.03	0.04	0.16	2.93E-03	0.73	0.01	1,092.00	1.13E-03	2.47E-03	1,092.37			
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	15,552	0	15,552	0.01	0.02	0.02	0.08	1.43E-03	0.35	6.94E-03	533.30	5.51E-04	1.21E-03	0.11	0.11	0.14	0.56	0.01	2.62	0.05	3,931.21	4.06E-03	8.91E-03	3,932.54			
Graders	2270002048	Diesel	250	59%	147.5	0	0	0	0.93E-03	9.59E-03	0.01	0.04	1.42E-03	0.16	3.21E-03	537.68	2.56E-04	5.61E-04	--	--	--	--	--	--	--	--	--	--	--	--		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696	0.02	0.02	0.03	0.06	1.42E-03	1.37	0.01	536.76	9.38E-04	2.06E-03	0.34	0.35	0.53	1.15	0.03	28.46	0.23	11,129.48	0.02	0.04	11,135.82			
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760	0.02	0.02	0.03	0.06	1.42E-03	1.37	0.01	536.76	9.38E-04	2.06E-03	0.03	0.03	0.04	0.09	2.39E-03	0.21	0.02	904.84	1.58E-03	3.47E-03	905.35			
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232	0.02	0.02	0.03	0.06	1.42E-03	1.37	0.01	536.76	9.38E-04	2.06E-03	0.18	0.18	0.27	0.60	0.02	14.76	0.12	5,770.84	0.01	0.02	5,774.13			
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864	0.02	0.02	0.03	0.06	1.42E-03	1.37	0.01	536.76	9.38E-04	2.06E-03	0.16	0.16	0.24	0.53	0.01	13.16	0.11	5,147.51	8.99E-03	0.02	5,150.44			
Water Truck	2270002051	Diesel	200	59%	118.0	576	0	576	0.02	0.02	0.03	0.06	1.42E-03	1.37	0.01	536.76	9.38E-04	2.06E-03	1.24E-03	1.28E-03	1.90E-03	4.16E-03	1.06E-04	0.10	8.29E-04	40.21	7.02E-05	1.54E-04	40.24			
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824	0.02	0.02	0.02	0.13	1.52E-03	0.79	8.38E-03	569.63	8.84E-04	1.94E-03	0.04	0.04	0.04	0.23	2.72E-03	1.41	0.02	1,024.27	1.59E-03	3.48E-03	1,024.79			
Rubber tire front loaders	2270002060	Diesel	50	59%	29.5	0	0	0	0.02	0.02	0.02	0.11	1.45E-03	0.58	8.73E-03	539.98	6.92E-04	1.52E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Rubber tire front loaders	2270002060	Diesel	200	59%	118.0	0	0	0	0.02	0.02	0.02	0.11	1.45E-03	0.58	8.73E-03	539.98	6.92E-04	1.52E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Rubber tire front loaders	2270002060	Diesel	250	59%	147.5	0	0	0	0.02	0.02	0.02	0.11	1.45E-03	0.58	8.73E-03	539.98	6.92E-04															

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2030					Hours ⁽²⁾				Emission Factors (g/hp-hr) ⁽³⁾														Tons per year (tpy)									
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾			
Nonroad Construction Equipment																																
Pavers	2270002003	Diesel	30	59%	17.7	3,456	0	3,456	0.01	0.01	0.02	0.08	1.46E-03	0.58	7.40E-03	550.77	9.14E-04	2.00E-03	8.81E-04	9.08E-04	1.26E-03	5.29E-03	9.82E-05	0.04	4.99E-04	37.14	6.16E-05	1.35E-04	37.16			
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912	0.01	0.01	0.02	0.08	1.46E-03	0.58	7.40E-03	550.77	9.14E-04	2.00E-03	8.81E-03	9.08E-03	0.01	0.05	9.82E-04	0.39	4.99E-03	371.38	6.16E-04	1.35E-03	371.58			
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		0	0	0.02	0.02	0.03	0.13	1.50E-03	0.76	0.01	559.64	1.40E-03	3.07E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	0	41,472	41,472	0.02	0.02	0.03	0.13	1.50E-03	0.76	0.01	559.64	1.40E-03	3.07E-03	0.06	0.07	0.10	0.44	4.85E-03	2.47	0.04	1,811.34	4.53E-03	9.94E-03	1,812.82			
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576	0.12	0.12	0.27	1.08	1.95E-03	3.23	0.13	586.30	0.01	0.02	0.06	0.06	0.14	0.56	1.00E-03	1.66	0.07	302.54	5.83E-03	0.01	304.44			
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648	0.12	0.12	0.27	1.08	1.95E-03	3.23	0.13	586.30	0.01	0.02	0.05	0.05	0.11	0.43	7.65E-04	1.27	0.05	230.50	4.44E-03	9.74E-03	231.95			
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	--	--	--	--	--	--	--	--	--	--	--	--			
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	0	0	0.08	0.08	0.12	0.47	1.57E-03	1.86	0.05	540.03	2.42E-03	5.31E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	0	0	0.08	0.08	0.12	0.47	1.57E-03	1.86	0.05	540.03	2.42E-03	5.31E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	0	0	0.08	0.08	0.12	0.47	1.57E-03	1.86	0.05	540.03	2.42E-03	5.31E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	0	0	0.08	0.08	0.12	0.47	1.57E-03	1.86	0.05	540.03	2.42E-03	5.31E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0	0.08	0.08	0.12	0.47	1.57E-03	1.86	0.05	540.03	2.42E-03	5.31E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0	0.20	0.22	3.90	171.42	4.64E-03	2.12	0.33	1068.24	0.30	0.66	--	--	--	--	--	--	--	--	--	--	--	--		
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520	9.81E-03	0.01	0.01	0.05	1.43E-03	0.31	4.77E-03	541.91	4.45E-04	9.76E-04	2.20E-03	2.27E-03	3.02E-03	0.01	3.22E-04	0.07	1.07E-03	121.80	1.00E-04	2.19E-04	121.84			
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760	9.81E-03	0.01	0.01	0.05	1.43E-03	0.31	4.77E-03	541.91	4.45E-04	9.76E-04	1.84E-03	1.89E-03	2.52E-03	8.91E-03	2.68E-04	0.06	8.94E-04	101.50	8.34E-05	1.83E-04	101.53			
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880	9.81E-03	0.01	0.01	0.05	1.43E-03	0.31	4.77E-03	541.91	4.45E-04	9.76E-04	2.76E-03	2.84E-03	3.77E-03	0.01	4.02E-04	0.09	1.34E-03	152.25	1.25E-04	2.74E-04	152.30			
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912	9.81E-03	0.01	0.01	0.05	1.43E-03	0.31	4.77E-03	541.91	4.45E-04	9.76E-04	0.01	0.01	0.02	0.06	1.93E-03	0.42	6.44E-03	730.82	6.00E-04	1.32E-03	731.02			
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016	9.81E-03	0.01	0.01	0.05	1.43E-03	0.31	4.77E-03	541.91	4.45E-04	9.76E-04	0.10	0.10	0.13	0.47	0.01	3.08	0.05	5,359.37	4.40E-03	9.65E-03	5,360.81			
Excavators	2270002036	Diesel	424	59%	250.2	0	0	0	9.81E-03	0.01	0.01	0.05	1.43E-03	0.31	4.77E-03	541.91	4.45E-04	9.76E-04	--	--	--	--	--	--	--	--	--	--	--	--		
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	0	0	0	0.03	0.03	0.07	0.28	1.60E-03	1.86	0.03	591.94	3.77E-03	8.26E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	0	0	0	0.12	0.13	3.99	250.81	4.36E-03	1.65	0.34	1003.54	0.31	0.68	--	--	--	--	--	--	--	--	--	--	--	--		
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	0	0	0	0.15	0.16	0.29	1.09	1.76E-03	2.71	0.12	564.09	7.76E-03	0.02	--	--	--	--	--	--	--	--	--	--	--	--		
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	0	0	0	0.15	0.16	4.13	257.70	4.75E-03	1.69	0.35	1093.59	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--		
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880	0.01	0.01	0.02	0.07	1.43E-03	0.32	6.13E-03	533.30	4.91E-04	1.08E-03	3.62E-03	3.73E-03	4.64E-03	0.02	3.89E-04	0.09	1.67E-03	145.60	1.34E-04	2.94E-04	145.65			
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520	0.01	0.01	0.02	0.07	1.43E-03	0.32	6.13E-03	533.30	4.91E-04	1.08E-03	0.02	0.02	0.02	0.08	1.71E-03	0.38	7.36E-03	640.65	5.90E-04	1.29E-03	640.84			
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640	0.01	0.01	0.02	0.07	1.43E-03	0.32	6.13E-03	533.30	4.91E-04	1.08E-03	0.03	0.03	0.03	0.14	2.92E-03	0.65	0.01	1,092.01	1.01E-03	2.21E-03	1,092.34			
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	15,552	0	15,552	0.01	0.01	0.02	0.07	1.43E-03	0.32	6.13E-03	533.30	4.91E-04	1.08E-03	0.10	0.10	0.13	0.49	0.01	2.35	0.05	3,931.25	3.62E-03	7.94E-03	3,932.43			
Graders	2270002048	Diesel	250	59%	147.5	0	0	0	8.37E-03	8.63E-03	0.01	0.03	1.42E-03	0.15	2.89E-03	537.68	2.28E-04	5.00E-04	--	--	--	--	--	--	--	--	--	--	--	--		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696	0.02	0.02	0.03	0.05	1.41E-03	1.37	0.01	536.76	9.26E-04	2.03E-03	0.34	0.35	0.52	1.10	0.03	28.39	0.23	11,129.49	0.02	0.04	11,135.75			
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760	0.02	0.02	0.03	0.05	1.41E-03	1.37	0.01	536.76	9.26E-04	2.03E-03	0.03	0.03	0.04	0.09	2.38E-03	2.31	0.02	904.84	1.56E-03	3.42E-03	905.35			
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232	0.02	0.02	0.03	0.05	1.41E-03	1.37	0.01	536.76	9.26E-04	2.03E-03	0.18	0.18	0.27	0.57	0.02	14.72	0.12	5,770.85	9.95E-03	0.02	5,774.09			
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864	0.02	0.02	0.03	0.05	1.41E-03	1.37	0.01	536.76	9.26E-04	2.03E-03	0.16	0.16	0.24	0.51	0.01	13.13	0.10	5,147.51	8.88E-03	0.02	5,150.41			
Water Truck	2270002051	Diesel	200	59%	118.0	576	0	576	0.02	0.02	0.03	0.05	1.41E-03	1.37	0.01	536.76	9.26E-04	2.03E-03	1.22E-03	1.26E-03	1.88E-03	3.98E-03	1.06E-04	0.10	8.19E-04	40.21	6.94E-05	1.52E-04	40.24			
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824	0.02	0.02	0.02	0.11	1.51E-03	0.76	7.39E-03	569.64	8.06E-04	1.77E-03	0.03	0.03	0.03	0.19	2.72E-03	1.37	0.01	1,024.28	1.45E-03	3.18E-03	1,024.76			
Rubber tire front loaders	2270002060	Diesel	300	59%	177.0	9,216	0	9,216	0.02	0.02	0.02	0.09	1.44E-03	0.54	7.85E-03	539.98	6.33E-04	1.39E-03	0.03	0.03	0.04	0.17	2.60E-03	0.97	0.01	970.95	1.14E-03	2.50E-03	971.33			
Rubber tire front loaders	2270002060	Diesel	50	59%	29.5	0	0	0	0.02	0.02	0.02	0.09	1.44E-03	0.54	7.85E-03	539.98	6.33E-04	1.39E-03	--	--	--	--	--	--	--	--	--	--	--	--		
Rubber tire front loaders	2270002060	Diesel	200	59%	118.0	0	0	0	0.02	0																						

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2031									Hours ⁽²⁾									Emission Factors (g/hp-hr) ⁽³⁾										Tons per year (tpy)									
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾								
Nonroad Construction Equipment																																					
Pavers	2270002003	Diesel	30	59%	17.7	3,456	0	3,456	0.01	0.01	0.02	0.07	1.46E-03	0.57	7.11E-03	550.77	8.88E-04	1.95E-03	8.20E-04	8.46E-04	1.21E-03	4.94E-03	9.81E-05	0.04	4.79E-04	37.14	5.99E-05	1.31E-04	37.16								
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912	0.01	0.01	0.02	0.07	1.46E-03	0.57	7.11E-03	550.77	8.88E-04	1.95E-03	8.20E-03	8.46E-03	0.01	0.05	9.81E-04	0.38	4.79E-03	371.38	5.99E-04	1.31E-03	371.58								
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		0	0	0.02	0.02	0.03	0.13	1.50E-03	0.75	0.01	559.64	1.37E-03	3.01E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	0	41,472	41,472	0.02	0.02	0.03	0.13	1.50E-03	0.75	0.01	559.64	1.37E-03	3.01E-03	0.06	0.06	0.10	0.41	4.84E-03	2.44	0.04	1,811.35	4.44E-03	9.73E-03	1,812.80								
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576	0.12	0.12	0.27	1.08	1.95E-03	3.21	0.13	586.31	0.01	0.02	0.06	0.06	0.14	0.56	1.00E-03	1.66	0.07	302.54	5.82E-03	0.01	304.44								
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648	0.12	0.12	0.27	1.08	1.95E-03	3.21	0.13	586.31	0.01	0.02	0.05	0.05	0.11	0.42	7.65E-04	1.26	0.05	230.51	4.43E-03	9.71E-03	231.95								
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648	0.19	0.21	4.74	253.59	4.83E-03	1.82	0.40	1111.86	0.37	0.80	0.08	0.08	1.86	99.70	1.90E-03	0.72	0.16	437.13	0.14	0.32	484.05								
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	0	0	0.07	0.07	0.10	0.40	1.55E-03	1.65	0.04	540.07	2.14E-03	4.68E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	0	0	0.07	0.07	0.10	0.40	1.55E-03	1.65	0.04	540.07	2.14E-03	4.68E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	0	0	0.07	0.07	0.10	0.40	1.55E-03	1.65	0.04	540.07	2.14E-03	4.68E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	0	0	0.07	0.07	0.10	0.40	1.55E-03	1.65	0.04	540.07	2.14E-03	4.68E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0	0.07	0.07	0.10	0.40	1.55E-03	1.65	0.04	540.07	2.14E-03	4.68E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0	0.20	0.22	3.87	170.27	4.64E-03	2.05	0.33	1067.60	0.30	0.65	--	--	--	--	--	--	--	--	--	--	--	--							
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520	9.57E-03	9.87E-03	0.01	0.05	1.43E-03	0.31	4.70E-03	541.92	4.39E-04	9.62E-04	2.15E-03	2.22E-03	2.98E-03	0.01	3.22E-04	0.07	1.06E-03	121.80	9.86E-05	2.16E-04	121.84								
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760	9.57E-03	9.87E-03	0.01	0.05	1.43E-03	0.31	4.70E-03	541.92	4.39E-04	9.62E-04	1.79E-03	1.85E-03	2.49E-03	8.68E-03	2.68E-04	0.06	8.80E-04	101.50	8.22E-05	1.80E-04	101.53								
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880	9.57E-03	9.87E-03	0.01	0.05	1.43E-03	0.31	4.70E-03	541.92	4.39E-04	9.62E-04	2.69E-03	2.77E-03	3.73E-03	0.01	4.02E-04	0.09	1.32E-03	152.26	1.23E-04	2.70E-04	152.30								
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912	9.57E-03	9.87E-03	0.01	0.05	1.43E-03	0.31	4.70E-03	541.92	4.39E-04	9.62E-04	0.01	0.01	0.02	0.06	1.93E-03	0.42	6.34E-03	730.82	5.91E-04	1.30E-03	731.02								
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016	9.57E-03	9.87E-03	0.01	0.05	1.43E-03	0.31	4.70E-03	541.92	4.39E-04	9.62E-04	0.09	0.10	0.13	0.46	0.01	3.06	0.05	5,359.38	4.34E-03	9.51E-03	5,360.79								
Excavators	2270002036	Diesel	424	59%	250.2	0	0	0	9.57E-03	9.87E-03	0.01	0.05	1.43E-03	0.31	4.70E-03	541.92	4.39E-04	9.62E-04	--	--	--	--	--	--	--	--	--	--	--	--							
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	0	0	0	0.03	0.03	0.07	0.26	1.59E-03	1.84	0.03	591.95	3.69E-03	8.10E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	0	0	0	0.12	0.13	4.00	250.82	4.36E-03	1.65	0.34	1003.54	0.31	0.68	--	--	--	--	--	--	--	--	--	--	--	--							
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	0	0	0	0.14	0.14	0.26	0.98	1.73E-03	2.48	0.11	564.16	7.38E-03	0.02	--	--	--	--	--	--	--	--	--	--	--	--							
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	0	0	0	0.15	0.16	4.14	257.72	4.75E-03	1.69	0.35	1093.56	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--							
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880	0.01	0.01	0.02	0.06	1.42E-03	0.29	5.51E-03	533.30	4.45E-04	9.75E-04	3.31E-03	3.41E-03	4.26E-03	0.02	3.88E-04	0.08	1.50E-03	145.60	1.21E-04	2.66E-04	145.64								
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520	0.01	0.01	0.02	0.06	1.42E-03	0.29	5.51E-03	533.30	4.45E-04	9.75E-04	0.01	0.02	0.02	0.07	1.71E-03	0.35	6.62E-03	640.65	5.34E-04	1.17E-03	640.83								
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640	0.01	0.01	0.02	0.06	1.42E-03	0.29	5.51E-03	533.30	4.45E-04	9.75E-04	0.02	0.03	0.03	0.12	2.91E-03	0.60	0.01	1,092.02	9.10E-04	2.00E-03	1,092.32								
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	15,552	0	15,552	0.01	0.01	0.02	0.06	1.42E-03	0.29	5.51E-03	533.30	4.45E-04	9.75E-04	0.09	0.09	0.12	0.43	0.01	2.15	0.04	3,931.28	3.28E-03	7.19E-03	3,932.35								
Graders	2270002048	Diesel	250	59%	147.5	0	0	0	7.77E-03	8.01E-03	9.62E-03	0.03	1.42E-03	0.14	2.70E-03	537.68	2.11E-04	4.62E-04	--	--	--	--	--	--	--	--	--	--	--	--							
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.19E-04	2.01E-03	0.33	0.34	0.52	1.07	0.03	28.35	0.22	11,129.49	0.02	0.04	11,135.71								
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.19E-04	2.01E-03	0.03	0.03	0.04	0.09	2.38E-03	2.30	0.02	904.84	1.55E-03	3.39E-03	905.34								
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.19E-04	2.01E-03	0.17	0.18	0.27	0.56	0.02	14.70	0.12	5,770.85	9.88E-03	0.02	5,774.07								
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.19E-04	2.01E-03	0.15	0.16	0.24	0.50	0.01	13.11	0.10	5,147.52	8.81E-03	0.02	5,150.39								
Water Truck	2270002051	Diesel	200	59%	118.0	576	0	576	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.19E-04	2.01E-03	1.21E-03	1.24E-03	1.87E-03	3.88E-03	1.06E-04	0.10	8.13E-04	40.21	6.88E-05	1.51E-04	40.24								
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824	0.02	0.02	0.02	0.10	1.51E-03	0.75	6.90E-03	569.64	7.69E-04	1.69E-03	0.03	0.03	0.03	0.17	2.71E-03	1.34	0.01	1,024.29	1.38E-03	3.03E-03	1,024.74								
Rubber tire front loaders	2270002060	Diesel	50	59%	29.5	0	0	0	0.02	0.02	0.02	0.08	1.44E-03	0.51	7.13E-03	539.99	5.83E-04	1.28E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Rubber tire front loaders	2270002060	Diesel	200	59%	118.0	0	0	0	0.02	0.02	0.02	0.08	1.44E-03	0.51	7.13E-03	539.99	5.83E-04	1.28E-03	--	--	--	--	--	--	--	--	--	--	--	--							
Rubber tire front loaders	2270002060	Diesel	250	59%	147.5	0	0	0	0.02	0.02	0.02	0.08	1.44E-																								

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2023									Hours ⁽²⁾		Emission Factors (g/hp-hr) ⁽³⁾										Tons per year (tpy)											
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total		PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾		
Nonroad Construction Equipment																																
Pavers	2270002003	Diesel	30	59%	17.7	3,456	0	3,456		0.01	0.01	0.02	0.07	1.45E-03	0.56	6.85E-03	550.77	8.66E-04	1.90E-03	7.70E-04	7.94E-04	1.18E-03	4.64E-03	9.80E-05	0.04	4.62E-04	37.14	5.84E-05	1.28E-04	37.16		
Pavers	2270002003	Diesel	150	59%	88.5	0	6,912	6,912		0.01	0.01	0.02	0.07	1.45E-03	0.56	6.85E-03	550.77	8.66E-04	1.90E-03	7.70E-03	7.94E-03	0.01	0.05	9.80E-04	0.38	4.62E-03	371.39	5.84E-04	1.28E-03	371.58		
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	100	59%	59.0		0	0		0.02	0.02	0.03	0.12	1.49E-03	0.74	0.01	559.64	1.35E-03	2.96E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Self-propelled rollers (sometimes called compactors)	2270002015	Diesel	120	59%	70.8	0	41,472	41,472		0.02	0.02	0.03	0.12	1.49E-03	0.74	0.01	559.64	1.35E-03	2.96E-03	0.06	0.06	0.09	0.40	4.83E-03	2.41	0.04	1,811.35	4.38E-03	9.59E-03	1,812.78		
Light plants (signal boards)	2270002027	Diesel	15	43%	6.5		72,576	72,576		0.12	0.12	0.27	1.07	1.94E-03	3.20	0.13	586.31	0.01	0.02	0.06	0.06	0.14	0.55	1.00E-03	1.65	0.07	302.54	5.81E-03	0.01	304.44		
Light plants (signal boards)	2270002027	Diesel	30	43%	12.9	27,648	0	27,648		0.12	0.12	0.27	1.07	1.94E-03	3.20	0.13	586.31	0.01	0.02	0.05	0.05	0.11	0.42	7.64E-04	1.26	0.05	230.51	4.42E-03	9.70E-03	231.95		
Light plants (signal boards)	2265002027	Gasoline	30	43%	12.9	27,648	0	27,648		0.19	0.21	4.74	253.62	4.83E-03	1.82	0.40	1111.85	0.37	0.80	0.08	0.08	1.86	99.71	1.90E-03	0.72	0.16	437.12	0.14	0.32	484.08		
Bore and drill rigs	2270002033	Diesel	140	43%	60.2	0	0	0		0.06	0.06	0.09	0.36	1.53E-03	1.51	0.04	540.10	1.95E-03	4.28E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2270002033	Diesel	180	43%	77.4	0	0	0		0.06	0.06	0.09	0.36	1.53E-03	1.51	0.04	540.10	1.95E-03	4.28E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2270002033	Diesel	200	43%	86.0	0	0	0		0.06	0.06	0.09	0.36	1.53E-03	1.51	0.04	540.10	1.95E-03	4.28E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2270002033	Diesel	300	43%	129.0	0	0	0		0.06	0.06	0.09	0.36	1.53E-03	1.51	0.04	540.10	1.95E-03	4.28E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2270002033	Diesel	1,200	43%	516.0	0	0	0		0.06	0.06	0.09	0.36	1.53E-03	1.51	0.04	540.10	1.95E-03	4.28E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Bore and drill rigs	2265002033	Gasoline	150	43%	64.5	0	0	0		0.21	0.22	3.86	169.54	4.64E-03	2.01	0.33	1067.05	0.30	0.65	--	--	--	--	--	--	--	--	--	--	--	--	
Excavators	2270002036	Diesel	30	59%	17.7	0	11,520	11,520		9.48E-03	9.77E-03	0.01	0.05	1.43E-03	0.31	4.66E-03	541.92	4.35E-04	9.54E-04	2.13E-03	2.20E-03	2.97E-03	0.01	3.21E-04	0.07	1.05E-03	121.80	9.78E-05	2.14E-04	121.84		
Excavators	2270002036	Diesel	50	59%	29.5	0	5,760	5,760		9.48E-03	9.77E-03	0.01	0.05	1.43E-03	0.31	4.66E-03	541.92	4.35E-04	9.54E-04	1.78E-03	1.83E-03	2.47E-03	8.56E-03	2.68E-04	0.06	8.73E-04	101.50	8.15E-05	1.79E-04	101.53		
Excavators	2270002036	Diesel	150	59%	88.5	0	2,880	2,880		9.48E-03	9.77E-03	0.01	0.05	1.43E-03	0.31	4.66E-03	541.92	4.35E-04	9.54E-04	2.66E-03	2.75E-03	3.71E-03	0.01	4.02E-04	0.09	1.31E-03	152.26	1.22E-04	2.68E-04	152.30		
Excavators	2270002036	Diesel	300	59%	177.0	0	6,912	6,912		9.48E-03	9.77E-03	0.01	0.05	1.43E-03	0.31	4.66E-03	541.92	4.35E-04	9.54E-04	0.01	0.01	0.02	0.06	1.93E-03	0.42	6.28E-03	730.82	5.87E-04	731.02			
Excavators	2270002036	Diesel	400	59%	236.0	0	38,016	38,016		9.48E-03	9.77E-03	0.01	0.05	1.43E-03	0.31	4.66E-03	541.92	4.35E-04	9.54E-04	0.09	0.10	0.13	0.45	0.01	3.05	0.05	5,359.38	4.30E-03	9.44E-03	5,360.79		
Excavators	2270002036	Diesel	424	59%	250.2	0	0	0		9.48E-03	9.77E-03	0.01	0.05	1.43E-03	0.31	4.66E-03	541.92	4.35E-04	9.54E-04	--	--	--	--	--	--	--	--	--	--	--	--	
Concrete or stone industrial saws	2270002039	Diesel	385	59%	227.2	0	0	0		0.03	0.03	0.07	0.25	1.59E-03	1.83	0.03	591.95	3.64E-03	7.98E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Concrete or stone industrial saws	2265002039	Gasoline	12	59%	7.1	0	0	0		0.12	0.13	4.40	250.84	4.36E-03	1.65	0.34	1003.53	0.31	0.68	--	--	--	--	--	--	--	--	--	--	--	--	
Cement and mortar mixers	2270002042	Diesel	600	43%	258.0	0	0	0		0.13	0.13	0.25	0.91	1.71E-03	2.33	0.10	564.20	7.18E-03	0.02	--	--	--	--	--	--	--	--	--	--	--	--	
Cement and mortar mixers	2265002042	Gasoline	240	43%	103.2	0	0	0		0.15	0.16	4.15	257.77	4.75E-03	1.69	0.35	1093.51	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--	
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	2,880	2,880		0.01	0.01	0.01	0.05	1.42E-03	0.27	4.99E-03	533.31	4.04E-04	8.87E-04	3.06E-03	3.16E-03	3.95E-03	0.01	3.87E-04	0.07	1.36E-03	145.60	1.10E-04	2.42E-04	145.64		
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	11,520	11,520		0.01	0.01	0.01	0.05	1.42E-03	0.27	4.99E-03	533.31	4.04E-04	8.87E-04	0.01	0.01	0.02	0.06	1.70E-03	0.32	5.99E-03	640.66	4.86E-04	1.07E-03	640.82		
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	8,640	8,640		0.01	0.01	0.01	0.05	1.42E-03	0.27	4.99E-03	533.31	4.04E-04	8.87E-04	0.02	0.02	0.03	0.11	2.90E-03	0.55	0.01	1,092.03	8.28E-04	1.82E-03	1,092.30		
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	15,552	0	15,552		0.01	0.01	0.01	0.05	1.42E-03	0.27	4.99E-03	533.31	4.04E-04	8.87E-04	0.08	0.09	0.11	0.39	0.01	1.99	0.04	3,931.30	2.98E-03	6.54E-03	3,932.28		
Graders	2270002048	Diesel	250	59%	147.5	0	0	0		7.44E-03	7.67E-03	9.40E-03	0.03	1.42E-03	0.14	2.59E-03	537.68	2.02E-04	4.42E-04	--	--	--	--	--	--	--	--	--	--	--	--	
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	141,696	141,696		0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.33	0.34	0.52	1.06	0.03	28.33	0.22	11,129.50	0.02	0.04	11,135.70		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	5,760	5,760		0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.03	0.03	0.04	0.09	2.38E-03	2.30	0.02	904.84	1.54E-03	3.39E-03	905.34		
Utility Truck	2270002051	Diesel	350	59%	206.5	0	47,232	47,232		0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.17	0.18	0.27	0.55	0.02	14.69	0.12	5,770.85	9.85E-03	0.02	5,774.07		
Water Truck	2270002051	Diesel	400	59%	236.0	0	36,864	36,864		0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.15	0.16	0.24	0.49	0.01	13.10	0.10	5,147.52	8.79E-03	0.02	5,150.39		
Water Truck	2270002051	Diesel	200	59%	118.0	576	0	576		0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	1.20E-03	1.24E-03	1.86E-03	3.84E-03	1.06E-04	0.10	8.11E-04	40.22	8.66E-05	1.50E-04	40.24		
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	13,824	0	13,824		0.02	0.02	0.02	0.09	1.51E-03	0.74	6.62E-03	569.64	7.47E-04	1.64E-03	0.03	0.03	0.16	2.71E-03	1.33	0.01	1,024.29	1.34E-03	2.94E-03	1,024.73			
Rubber tire front loaders	2270002060	Diesel	50	59%	29.5	0	0	0		0.01	0.01	0.02	0.07	1.44E-03	0.49	6.54E-03	539.99	5.42E-04	1.19E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Rubber tire front loaders	2270002060	Diesel	200	59%	118.0	0	0	0		0.01	0.01	0.02	0.07	1.44E-03	0.49	6.54E-03	539.99	5.42E-04	1.19E-03	--	--	--	--	--	--	--	--	--	--	--	--	
Rubber tire front loaders</																																

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

Construction Year: 2033									Hours ⁽²⁾		Emission Factors (g/hp-hr) ⁽³⁾										Tons per year (tpy)												
Actual Description	SCC Code	Fuel	Engine Rating (hp)	Load Factor ⁽¹⁾	Adjusted Horsepower ⁽¹⁾	Wharf and Ramps	Landside Features	Total	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ⁽⁴⁾	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ⁽⁵⁾				
Nonroad Construction Equipment																																	
Pavers	22700002003	Diesel	30	59%	17.7	1,728	0	1,728	0.01	0.01	0.02	0.07	1.45E-03	0.56	6.64E-03	550.78	8.47E-04	1.86E-03	3.62E-04	3.73E-04	5.74E-04	2.19E-03	4.90E-05	0.02	2.24E-04	18.57	2.86E-05	6.26E-05	18.58				
Pavers	22700002003	Diesel	150	59%	88.5	0	3,456	3,456	0.01	0.01	0.02	0.07	1.45E-03	0.56	6.64E-03	550.78	8.47E-04	1.86E-03	3.62E-03	3.73E-03	5.74E-03	0.02	4.90E-04	0.19	2.24E-03	185.69	2.86E-04	6.26E-04	185.79				
Self-propelled rollers (sometimes called compactors)	22700002015	Diesel	100	59%	59.0	0	0	0	0.02	0.02	0.03	0.12	1.49E-03	0.74	0.01	559.64	1.33E-03	2.92E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Self-propelled rollers (sometimes called compactors)	22700002015	Diesel	120	59%	70.8	0	20,736	20,736	0.02	0.02	0.03	0.12	1.49E-03	0.74	0.01	559.64	1.33E-03	2.92E-03	0.03	0.03	0.05	0.19	2.41E-03	1.19	0.02	905.68	2.15E-03	4.72E-03	906.38				
Light plants (signal boards)	22700002027	Diesel	15	43%	6.5		36,288	36,288	0.12	0.12	0.27	1.07	1.94E-03	3.20	0.13	586.31	0.01	0.02	0.03	0.03	0.07	0.28	5.01E-04	0.82	0.03	151.27	2.90E-03	6.36E-03	152.22				
Light plants (signal boards)	22700002027	Diesel	30	43%	12.9	23,040	0	23,040	0.12	0.12	0.27	1.07	1.94E-03	3.20	0.13	586.31	0.01	0.02	0.04	0.04	0.09	0.35	6.36E-04	1.05	0.04	192.09	3.68E-03	8.07E-03	193.29				
Light plants (signal boards)	22650002027	Gasoline	30	43%	12.9	23,040	0	23,040	0.19	0.21	4.74	253.58	4.83E-03	1.82	0.40	1111.87	0.37	0.80	0.06	0.07	1.55	83.08	1.58E-03	0.60	0.13	364.27	0.12	0.26	403.37				
Bore and drill rigs	22700020033	Diesel	140	43%	60.2	0	0	0	0.05	0.06	0.08	0.32	1.52E-03	1.39	0.03	540.13	1.82E-03	3.98E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	22700020033	Diesel	180	43%	77.4	0	0	0	0.05	0.06	0.08	0.32	1.52E-03	1.39	0.03	540.13	1.82E-03	3.98E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	22700020033	Diesel	200	43%	86.0	0	0	0	0.05	0.06	0.08	0.32	1.52E-03	1.39	0.03	540.13	1.82E-03	3.98E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	22700020033	Diesel	300	43%	129.0	0	0	0	0.05	0.06	0.08	0.32	1.52E-03	1.39	0.03	540.13	1.82E-03	3.98E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	22700020033	Diesel	1,200	43%	516.0	0	0	0	0.05	0.06	0.08	0.32	1.52E-03	1.39	0.03	540.13	1.82E-03	3.98E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Bore and drill rigs	22650002033	Gasoline	150	43%	64.5	0	0	0	0.20	0.22	3.83	168.84	4.64E-03	1.96	0.33	1066.57	0.30	0.65	--	--	--	--	--	--	--	--	--	--	--	--	--		
Excavators	22700020036	Diesel	30	59%	17.7	0	5,760	5,760	9.41E-03	9.70E-03	0.01	0.05	1.43E-03	0.31	4.64E-03	541.92	4.33E-04	9.50E-04	1.06E-03	1.09E-03	1.48E-03	5.09E-03	1.61E-04	0.03	5.21E-04	60.90	4.87E-05	1.07E-04	60.92				
Excavators	22700020036	Diesel	50	59%	29.5	0	2,880	2,880	9.41E-03	9.70E-03	0.01	0.05	1.43E-03	0.31	4.64E-03	541.92	4.33E-04	9.50E-04	8.81E-04	9.09E-04	1.23E-03	4.24E-03	1.34E-04	0.03	4.34E-04	50.75	4.06E-05	8.89E-05	50.76				
Excavators	22700020036	Diesel	150	59%	88.5	0	1,440	1,440	9.41E-03	9.70E-03	0.01	0.05	1.43E-03	0.31	4.64E-03	541.92	4.33E-04	9.50E-04	1.32E-03	1.36E-03	1.85E-03	6.36E-03	2.01E-04	0.04	6.51E-04	76.13	6.09E-05	1.33E-04	76.15				
Excavators	22700020036	Diesel	300	59%	177.0	0	3,456	3,456	9.41E-03	9.70E-03	0.01	0.05	1.43E-03	0.31	4.64E-03	541.92	4.33E-04	9.50E-04	6.35E-03	6.54E-03	8.87E-03	0.03	9.64E-04	0.21	3.33E-03	365.41	2.92E-04	6.40E-04	365.51				
Excavators	22700020036	Diesel	400	59%	236.0	0	19,008	19,008	9.41E-03	9.70E-03	0.01	0.05	1.43E-03	0.31	4.64E-03	541.92	4.33E-04	9.50E-04	0.05	0.05	0.07	0.22	7.07E-03	1.52	0.02	2,679.69	2.14E-03	4.70E-03	2,680.38				
Excavators	22700020036	Diesel	424	59%	250.2	0	0	0	9.41E-03	9.70E-03	0.01	0.05	1.43E-03	0.31	4.64E-03	541.92	4.33E-04	9.50E-04	--	--	--	--	--	--	--	--	--	--	--	--	--		
Concrete or stone industrial saws	22700002039	Diesel	385	59%	227.2	0	0	0	0.02	0.02	0.06	0.23	1.59E-03	1.82	0.03	591.96	3.60E-03	7.89E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Concrete or stone industrial saws	22650002039	Gasoline	12	59%	7.1	0	0	0	0.12	0.13	4.40	250.82	4.36E-03	1.65	0.34	1003.54	0.31	0.68	--	--	--	--	--	--	--	--	--	--	--	--	--		
Cement and mortar mixers	22700002042	Diesel	600	43%	258.0	0	0	0	0.12	0.12	0.24	0.86	1.70E-03	2.21	0.10	564.24	7.11E-03	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--		
Cement and mortar mixers	22650002042	Gasoline	240	43%	103.2	0	0	0	0.15	0.16	4.14	257.65	4.75E-03	1.69	0.35	1093.55	0.32	0.70	--	--	--	--	--	--	--	--	--	--	--	--	--		
Self-propelled cranes	2270002045	Diesel	200	43%	86.0	0	1,440	1,440	0.01	0.01	0.01	0.05	1.42E-03	0.25	4.52E-03	533.31	3.67E-04	8.05E-04	1.42E-03	1.47E-03	1.84E-03	6.51E-03	1.93E-04	0.03	6.17E-04	72.80	5.01E-05	1.10E-04	72.82				
Self-propelled cranes	2270002045	Diesel	220	43%	94.6	0	5,760	5,760	0.01	0.01	0.01	0.05	1.42E-03	0.25	4.52E-03	533.31	3.67E-04	8.05E-04	6.27E-03	6.46E-03	8.09E-03	0.03	8.50E-04	0.15	2.71E-03	320.33	2.20E-04	4.83E-04	320.40				
Self-propelled cranes	2270002045	Diesel	500	43%	215.0	0	4,320	4,320	0.01	0.01	0.01	0.05	1.42E-03	0.25	4.52E-03	533.31	3.67E-04	8.05E-04	0.01	0.01	0.01	0.05	1.45E-03	0.05	1.45E-03	0.26	4.63E-03	546.02	3.76E-04	8.24E-04	546.14		
Self-propelled cranes	2270002045	Diesel	1,000	43%	430.0	12,960	0	12,960	0.01	0.01	0.01	0.05	1.42E-03	0.25	4.52E-03	533.31	3.67E-04	8.05E-04	0.06	0.07	0.08	0.29	8.69E-03	1.53	0.03	3,276.10	2.25E-03	4.94E-03	3,276.84				
Graders	2270002048	Diesel	250	59%	147.5	0	0	0	7.29E-03	7.51E-03	9.30E-03	0.03	1.42E-03	0.14	2.54E-03	537.68	1.98E-04	4.33E-04	--	--	--	--	--	--	--	--	--	--	--	--	--		
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	225	59%	132.8	0	70,848	70,848	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.17	0.17	0.26	0.53	0.01	14.17	0.11	5,564.75	9.50E-03	0.02	5,567.85				
Off-highway trucks(1-2.5 ton trucks)	2270002051	Diesel	450	59%	265.5	0	2,880	2,880	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.01	0.01	0.02	0.04	1.19E-03	1.15	0.91E-03	452.42	7.72E-04	1.69E-03	452.67				
Utility Truck	2270002051	Diesel	350	59%	206.5	0	23,616	23,616	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.09	0.09	0.13	0.28	7.60E-03	7.35	0.06	2,885.42	4.92E-03	0.01	2,887.03				
Water Truck	2270002051	Diesel	400	59%	236.0	0	18,432	18,432	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	0.08	0.08	0.12	0.25	6.78E-03	6.55	0.05	2,573.76	4.39E-03	9.63E-03	2,575.19				
Water Truck	2270002051	Diesel	200	59%	118.0	96	0	96	0.02	0.02	0.02	0.05	1.41E-03	1.37	0.01	536.76	9.16E-04	2.01E-03	2.00E-04	2.06E-04	3.10E-04	6.40E-04	1.76E-05	0.02	1.35E-04	6.70	1.14E-05	2.51E-05	6.71				
Rough terrain forklifts	2270002057	Diesel	200	59%	118.0	11,520	0	11,520	0.01	0.01	0.02	0.08	1.51E-03	0.73	6.41E-03	569.65	7.30E-04	1.60E-03	0.02	0.02	0.12	2.26E-03	1.09	9.61E-03	853.58	1.09E-03	2.40E-03	853.94					
Rubber tire front loaders	2270002060	Diesel	50	59%	29.5	0	0	0	0.01	0.01	0.02	0.06	1.43E-03	0.46	5.87E-03	539.99	4.92E-04	1.08E-03	--	--	--	--	--	--	--	--	--	--	--	--	--		
Rubber tire front loaders	2270002060	Diesel	200	59%	118.0	0	0	0	0.01	0.01	0.02	0.06	1.43E-03	0.46	5.87E-03	539.99	4.92E-04	1.08E-03	--	--	--	--	--	--	--	--	--	--					

Table C-2
Louisiana International Terminal
Off-Road Construction Equipment Emissions
St. Bernard Parish

[3] Emissions for all nonroad sources except for marine vessels were calculated based on emission factors derived from USEPA MOVES4 Model for each county for each construction year and in the month of July, to be conservative. Pile Driver emission factor is assumed to be the same as bore and drill rig emissions. Marine vessel emission factors from Appendix H of Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1014115.pdf>. It was assumed that all vehicles would meet EPA Tier I or Tier 2 engine standards and that all tugboats, crew boats, and work boats were Category 1 boats, which comprise the vast majority of harbor vessels. Dredging vessel emission factors are average harbor craft emission factors for Tier 1 engines, as listed in Table H.7 in the Port Emission Inventory Guidance. Maximum emission factors meeting this criteria have been converted from g/kWh to g/hp-hr by multiplying by 0.7457. PM2.5 was conservatively assumed to be equal to PM10 and HAP emissions were conservatively assumed to be equal to VOC emissions.

[4] NZO was not calculated using the MOVES4 NONROAD Model. In order to estimate NZO emissions, the g/hp-hr factor for CH4 was multiplied by a ratio of 0.26 (g NZO/gal fuel) / 0.57 (g CH4/gal fuel). The g/gallon of fuel factors were sourced from diesel construction/mining equipment in the document titled "Direct Emissions from Mobile Combustion Sources", January 2016.

[5] CO2e was calculated by summing the emissions for CO2, N2O, and CH4. N2O and CH4 were both multiplied by their relative global warming potential factor first. N2O has a global warming potential factor equivalent to 265 times that of CO2, while CH4 has a global warming potential equivalent to 28 times CO2, per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

[6] Total emissions for each year include off-road construction equipment emissions from both Wharf & Ramps and Landside Features.

Table C-3
Louisiana International Terminal
On-Road Vehicle Engine Emissions

Year 2025									Emission Factors (lb/mile) ^[1]											Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[4]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]	
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	96	384,000	5.00E-08	4.42E-08	1.68E-05	5.13E-06	3.98E-06	1.24E-08	4.87E-06	0.85	3.29E-06	2.81E-07	9.60E-06	8.49E-06	3.22E-03	9.85E-04	7.65E-04	2.38E-06	9.36E-04	162.53	6.32E-04	5.39E-05	162.70	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	16	320	1.87E-05	1.72E-05	3.15E-04	4.03E-05	1.15E-05	5.50E-05	3.86E-06	3.43	4.40E-04	1.08E-06	2.99E-06	2.75E-06	5.04E-05	6.46E-06	1.84E-06	6.18E-07	0.55	7.04E-05	1.73E-07	0.57		
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	96	384,000	5.00E-08	4.42E-08	1.68E-05	5.13E-06	3.98E-06	1.24E-08	4.87E-06	0.85	3.29E-06	2.81E-07	9.60E-06	8.49E-06	3.22E-03	9.85E-04	7.65E-04	2.38E-06	9.36E-04	162.53	6.32E-04	5.39E-05	162.70	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	16	320	1.87E-05	1.72E-05	3.15E-04	4.03E-05	1.15E-05	5.50E-05	3.86E-06	3.43	4.40E-04	1.08E-06	2.99E-06	2.75E-06	5.04E-05	6.46E-06	1.84E-06	6.18E-07	0.55	7.04E-05	1.73E-07	0.57		
									Total ^[6]											2.52E-05 2.25E-05 6.54E-03 1.98E-03 1.53E-03 2.23E-05 1.87E-03 0.26 1.41E-03 1.08E-04 326.54										
Year 2026									Emission Factors (lb/mile) ^[1]											Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[4]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]	
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.10E-08	4.64E-08	1.62E-05	4.77E-06	3.91E-06	9.81E-09	4.70E-06	0.83	3.11E-06	2.38E-07	2.36E-05	2.67E-05	9.32E-03	2.75E-03	2.25E-03	5.65E-06	2.70E-03	478.82	1.79E-03	1.37E-04	479.30	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	48	23,040	1.46E-05	1.58E-05	3.10E-04	3.66E-05	1.14E-05	5.49E-05	3.62E-06	3.39	4.45E-04	9.77E-07	1.68E-04	1.82E-04	3.58E-03	4.22E-04	1.31E-04	6.33E-04	4.17E-05	39.00	5.13E-03	1.13E-05	40.36	
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.10E-08	4.64E-08	1.62E-05	4.77E-06	3.91E-06	9.81E-09	4.70E-06	0.83	3.11E-06	2.38E-07	2.36E-05	2.67E-05	9.32E-03	2.75E-03	2.25E-03	5.65E-06	2.70E-03	478.82	1.79E-03	1.37E-04	479.30	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	48	960	1.46E-05	1.58E-05	3.10E-04	3.66E-05	1.14E-05	5.49E-05	3.62E-06	3.39	4.45E-04	9.77E-07	6.99E-06	7.60E-06	1.49E-04	1.76E-05	5.45E-06	2.64E-05	1.74E-06	1.62	2.14E-04	4.69E-07	1.68	
									Total ^[6]											2.22E-04 2.43E-04 0.02 5.94E-03 4.64E-03 6.71E-04 5.45E-03 998.26 8.92E-03 1.00E-03										
Year 2027									Emission Factors (lb/mile) ^[1]											Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[4]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]	
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.54E-08	4.02E-08	1.59E-05	4.55E-06	3.84E-06	8.60E-09	4.61E-06	0.82	2.94E-06	2.17E-07	2.61E-05	2.31E-05	9.16E-03	2.62E-03	2.21E-03	4.95E-06	2.65E-03	470.67	1.69E-03	1.25E-04	471.12	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	48	23,040	9.19E-07	8.13E-07	1.31E-04	1.86E-05	1.63E-05	9.60E-08	3.81E-05	3.45	2.26E-05	1.55E-06	1.06E-05	9.37E-06	1.51E-03	2.14E-04	1.87E-04	1.11E-06	4.39E-04	39.79	2.61E-04	1.79E-05	39.86	
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.54E-08	4.02E-08	1.59E-05	4.55E-06	3.84E-06	8.60E-09	4.61E-06	0.82	2.94E-06	2.17E-07	2.61E-05	2.31E-05	9.16E-03	2.62E-03	2.21E-03	4.95E-06	2.65E-03	470.67	1.69E-03	1.25E-04	471.12	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	48	960	9.19E-07	8.13E-07	1.31E-04	1.86E-05	1.63E-05	9.60E-08	3.81E-05	3.45	2.26E-05	1.55E-06	4.41E-07	3.90E-07	6.29E-05	8.93E-06	7.80E-06	4.61E-08	1.83E-05	1.66	1.09E-05	7.45E-07	1.66	
									Total ^[6]											6.33E-05 3.50E-05 0.02 5.46E-03 4.62E-03 1.11E-05 5.77E-03 982.79 3.66E-03 2.58E-04 983.77										
Year 2028									Emission Factors (lb/mile) ^[1]											Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[4]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]	
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.25E-08	3.76E-08	1.57E-05	4.29E-06	3.79E-06	7.48E-09	4.54E-06	0.81	2.76E-06	2.03E-07	2.45E-05	2.17E-05	9.03E-03	2.47E-03	2.18E-03	4.31E-06	2.62E-03	464.39	1.59E-03	1.17E-04	464.81	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	48	23,040	1.02E-06	9.01E-07	1.31E-04	1.63E-05	1.63E-05	9.45E-08	3.80E-05	3.45	2.33E-05	1.44E-06	7.04E-05	6.23E-05	9.04E-03	1.13E-03	1.12E-03	5.53E-06	2.63E-03	238.76	1.61E-03	9.95E-05	239.19	
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.25E-08	3.76E-08	1.57E-05	4.29E-06	3.79E-06	7.48E-09	4.54E-06	0.81	2.76E-06	2.03E-07	2.45E-05	2.17E-05	9.03E-03	2.47E-03	2.18E-03	4.31E-06	2.62E-03	464.39	1.59E-03	1.17E-04	464.81	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	48	960	1.01E-06	8.97E-07	1.31E-04	1.62E-05	1.63E-05	8.95E-08	3.80E-05	3.45	2.21E-05	1.42E-06	4.87E-07	4.31E-07	6.28E-05	7.79E-06	7.80E-06	4.29E-08	1.82E-05	1.66	1.06E-05	6.81E-07	1.66	
									Total ^[6]											6.12E-05 5.41E-05 0.02 5.14E-03 4.56E-03 5.69E-06 5.69E-03 970.22 3.44E-03 2.51E-04 971.14										
Year 2029									Emission Factors (lb/mile) ^[1]											Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[4]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]	
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.01E-08	3.54E-08	1.56E-05	4.04E-06	3.76E-06	5.56E-09	4.50E-06	0.80	2.56E-06	1.91E-07	2.31E-05	2.04E-05	8.96E-03	2.32E-03	2.17E-03	3.20E-06	2.59E-03	460.66	1.48E-03	1.10E-04	461.05	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	288	138,240	1.02E-06	9.01E-07	1.31E-04	1.63E-05	1.63E-05	9.45E-08	3.80E-05	3.45	2.33E-05	1.44E-06	7.04E-05	6.23E-05	9.04E-03	1.13E-03	1.12E-03	5.53E-06	2.63E-03	238.76	1.61E-03	9.95E-05	239.19	
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	4.01E-08	3.54E-08	1.56E-05	4.04E-06	3.76E-06	5.56E-09	4.50E-06	0.80	2.56E-06	1.91E-07	2.31E-05	2.04E-05	8.96E-03	2.32E-03	2.17E-03	3.20E-06	2.59E-03	460.66	1.48E-03	1.10E-04	461.05	
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	288	5,760	1.02E-06	9.01E-07	1.31E-04	1.63E-05	1.63E-05	9.45E-08	3.80E-05	3.45	2.33E-05	1.44E-06	2.93E-06	2.60E-06	3.77E-04	4.69E-05	4.68E-05	2.72E-07	1.09E-04	9.95	6.70E-05	4.15E-06	9.97	
									Total ^[6]											1.20E-04 1.06E-04 0.03 5.82E-03 5.50E-03 1.32E-05 7.92E-03 1.170E-02 4.63E-03 3.24E-04 1.171E-26										

Table C-3
Louisiana International Terminal
On-Road Vehicle Engine Emissions

Year 2030									Emission Factors (lb/mile) ^[1]										Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[2]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	3.92E-08	3.47E-08	1.55E-05	3.87E-06	3.74E-06	4.66E-09	4.48E-06	0.80	2.49E-06	1.83E-07	2.26E-05	2.00E-05	8.91E-03	2.23E-03	2.16E-03	2.68E-06	2.58E-03	458.40	1.43E-03	1.06E-04	458.78
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	48	23,040	1.02E-06	9.05E-07	1.31E-04	1.54E-05	1.63E-05	8.38E-08	3.79E-05	3.45	2.18E-05	1.34E-06	1.18E-05	1.04E-05	1.50E-03	1.78E-04	1.87E-04	9.66E-07	4.37E-04	39.79	2.51E-04	1.55E-05	39.86
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	3.92E-08	3.47E-08	1.55E-05	3.87E-06	3.74E-06	4.66E-09	4.48E-06	0.80	2.49E-06	1.83E-07	2.26E-05	2.00E-05	8.91E-03	2.23E-03	2.16E-03	2.68E-06	2.58E-03	458.40	1.43E-03	1.06E-04	458.78
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	48	960	1.02E-06	9.05E-07	1.31E-04	1.54E-05	1.63E-05	8.38E-08	3.79E-05	3.45	2.18E-05	1.34E-06	4.91E-07	4.34E-07	6.27E-05	7.40E-06	7.80E-06	4.02E-08	1.82E-05	1.66	1.05E-05	6.45E-07	1.66
									Total ^[4]										5.74E-05	5.08E-05	0.02	4.64E-03	4.51E-03	5.61E-03	958.25	3.13E-03	2.27E-04	959.09	
Year 2031									Emission Factors (lb/mile) ^[1]										Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[2]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	3.67E-08	3.25E-08	1.54E-05	3.71E-06	3.73E-06	2.79E-09	4.46E-06	0.79	2.16E-06	1.76E-07	2.11E-05	1.87E-05	8.87E-03	2.14E-03	2.15E-03	1.61E-06	2.57E-03	456.79	1.25E-03	1.01E-04	457.12
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	48	23,040	9.80E-07	8.67E-07	1.33E-04	1.99E-05	1.63E-05	1.08E-07	3.86E-05	3.45	2.18E-05	1.73E-06	1.13E-05	9.99E-06	1.53E-03	2.29E-04	1.87E-04	1.25E-06	4.44E-04	39.79	2.51E-04	2.00E-05	39.86
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	3.67E-08	3.25E-08	1.54E-05	3.71E-06	3.73E-06	2.79E-09	4.46E-06	0.79	2.16E-06	1.76E-07	2.11E-05	1.87E-05	8.87E-03	2.14E-03	2.15E-03	1.61E-06	2.57E-03	456.79	1.25E-03	1.01E-04	457.12
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	48	960	9.80E-07	8.67E-07	1.33E-04	1.99E-05	1.63E-05	1.08E-07	3.86E-05	3.45	2.18E-05	1.73E-06	4.71E-07	4.16E-07	6.37E-05	9.55E-06	7.80E-06	5.20E-08	1.85E-05	1.66	1.05E-05	8.33E-07	1.66
									Total ^[4]										5.40E-05	4.78E-05	0.02	4.51E-03	4.49E-03	5.61E-03	955.03	2.75E-03	2.24E-04	955.77	
Year 2032									Emission Factors (lb/mile) ^[1]										Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[2]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	3.56E-08	3.15E-08	1.53E-05	3.57E-06	3.71E-06	2.49E-09	4.43E-06	0.79	2.14E-06	1.72E-07	2.05E-05	1.81E-05	8.83E-03	2.06E-03	2.14E-03	1.43E-06	2.55E-03	454.79	1.23E-03	9.93E-05	455.12
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	24	48	23,040	9.62E-07	8.51E-07	1.32E-04	1.81E-05	1.63E-05	9.83E-08	3.83E-05	3.45	2.18E-05	1.58E-06	1.11E-05	9.80E-06	1.52E-03	2.08E-04	1.87E-04	1.13E-06	4.41E-04	39.79	2.51E-04	1.82E-05	39.86
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	288	1,152,000	3.56E-08	3.15E-08	1.53E-05	3.57E-06	3.71E-06	2.49E-09	4.43E-06	0.79	2.14E-06	1.72E-07	2.05E-05	1.81E-05	8.83E-03	2.06E-03	2.14E-03	1.43E-06	2.55E-03	454.79	1.23E-03	9.93E-05	455.12
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	48	960	9.62E-07	8.51E-07	1.32E-04	1.81E-05	1.63E-05	9.83E-08	3.83E-05	3.45	2.18E-05	1.58E-06	4.62E-07	4.08E-07	6.33E-05	8.68E-06	7.80E-06	4.72E-08	1.84E-05	1.66	1.05E-05	7.56E-07	1.66
									Total ^[4]										5.26E-05	4.65E-05	0.02	4.33E-03	4.47E-03	5.57E-03	951.04	2.72E-03	2.18E-04	951.77	
Year 2033									Emission Factors (lb/mile) ^[1]										Emissions (tpy) ^[2]										
Parish	Facility	Equipment Type	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[3]	Number of Round Trips/ Vehicle ^[2]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	240	960,000	3.41E-08	3.02E-08	1.52E-05	3.39E-06	3.67E-06	2.09E-09	4.38E-06	0.78	2.12E-06	1.67E-07	1.64E-05	1.45E-05	7.27E-03	1.63E-03	1.76E-03	1.00E-06	2.10E-03	374.94	1.02E-03	8.01E-05	375.22
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	20	40	16,000	9.90E-07	8.76E-07	1.28E-04	1.75E-05	1.63E-05	9.54E-08	3.73E-05	3.45	2.18E-05	1.53E-06	7.92E-06	7.01E-06	1.03E-03	1.40E-04	1.30E-04	7.63E-07	2.98E-04	27.63	1.74E-04	1.22E-05	27.68
	Landside Features	Commuter Passenger Truck	Gasoline	Passenger Truck	40	100	240	960,000	3.41E-08	3.02E-08	1.52E-05	3.39E-06	3.67E-06	2.09E-09	4.38E-06	0.78	2.12E-06	1.67E-07	1.64E-05	1.45E-05	7.27E-03	1.63E-03	1.76E-03	1.00E-06	2.10E-03	374.94	1.02E-03	8.01E-05	375.22
		Heavy Duty Construction	Diesel	Combination Long-Haul Truck	20	8	40	800	9.90E-07	8.76E-07	1.28E-04	1.75E-05	1.63E-05	9.54E-08	3.73E-05	3.45	2.18E-05	1.53E-06	3.96E-07	3.50E-07	5.13E-05	7.01E-06	6.50E-06	3.81E-08	1.49E-05	1.38	8.71E-06	6.11E-07	1.38
									Total ^[4]										4.11E-05	3.64E-05	0.02	3.40E-03	3.66E-03	2.81E-06	4.52E-03	778.90	2.22E-03	1.73E-04	779.50

Notes:
[1] Number of Commuter Trucks and Light duty Construction trucks estimated by the Applicant. An additional 2 trucks per month of heavy duty construction vehicles were also assumed, to support equipment deliveries.
[2] Number of Trips / Vehicle = number of months of construction x 4 weeks/mo x 6 day/wk work schedule. This assumes that each vehicle makes one round trip to the site once each day, with the exception of heavy duty vehicles which are based upon 1 trip per week.
[3] Emissions were calculated based on emission factors derived from USEPA MOVES4 Model for each county for each project year on rural unrestricted roads and in the month of July, to be conservative.
[4] Emissions (ton/yr) = (Total Miles/Year x Emission Factor (lb/mile) / 2,000 (lb/ton)
[5] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.
[6] Emissions from deliveries are also anticipated, but would not be expected to exceed any conformity thresholds.

Table C-4
Louisiana International Terminal
Off-Road Vehicle Fugitive Emissions - Emission Factor Calculation

Vehicle Duty Type	k (lb/VMT) [constant] ^[1]		a [constant] ^[1]	b [constant] ^[1]	s (%) [surface material silt content] ^[2]	W (tons) [mean vehicle weight] ^[3]	E (lb/VMT) [size specific emission factor] ^[4]		P (day/yr) [0.01 in of precipitation] ^[5]	E _{ext} (lb/VMT) [annual size specific emission factor for natural mitigation] ^[6]	
	PM ₁₀	PM _{2.5}					PM ₁₀	PM _{2.5}		PM ₁₀	PM _{2.5}
Light Duty Vehicles	1.5	0.15	0.9	0.45	8.50	5	1.38	0.14	120	0.93	0.09
Heavy Duty Vehicles	1.5	0.15	0.9	0.45	8.50	40	3.53	0.35	120	2.37	0.24

Notes:

[1] AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Table 13.2.2-2: Constants for Equations 1a.

[2] AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Table 13.2.2-1: Typical Silt Content Values of Surface Material on Industrial Unpaved Roads, mean value for construction sites.

[3] Mean Vehicle Weight for light duty vehicles obtained from 49 CFR Part 523 - Vehicle Classification and is conservatively listed as the maximum class 2b vehicle weight of 10,000 lbs. Mean vehicle weight for heavy duty vehicles listed is the maximum weight allowed on interstate highways in Louisiana per "Louisiana Regulations for Trucks, Vehicles and Loads", 2013, Louisiana Department of Transportation & Development.

[4] AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Equation 1a (Nov 2006).

Equation 1a: $E = k(s/12)^2(W/3)^b$

[5] AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Figure 13.2.2-1: Mean number of days with 0.01 inch or more of precipitation in United States.

[6] AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Equation 2 (Nov 2006).

Equation 2: $E_{ext} = E [(365-P)/365]$

Table C-5
Louisiana International Terminal
Off-Road Vehicle Fugitive Emissions

Year 2025

Year 2025									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	96	21,120	0.93	0.09	9.81	0.98
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	2	96	422	0.93	0.09	0.20	0.02
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	8	16	35	2.37	0.24	0.04	4.17E-03
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	96	11,520	0.93	0.09	5.35	0.54
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	16	19	2.37	0.24	0.02	2.27E-03
		Total:										

Year 2026

Year 2026									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	2	288	1,267	0.93	0.09	0.59	0.06
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	48	2,534	2.37	0.24	3.00	0.30
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	48	58	2.37	0.24	0.07	6.82E-03
		Total:										49.14

Year 2027

Year 2027									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	3	288	1,901	0.93	0.09	0.88	0.09
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	48	2,534	2.37	0.24	3.00	0.30
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	48	58	2.37	0.24	0.07	6.82E-03
		Total:										49.44

Table C-5
Louisiana International Terminal
Off-Road Vehicle Fugitive Emissions

Year 2028

Year 2028									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	2	288	1,267	0.93	0.09	0.59	0.06
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	48	2,534	2.37	0.24	3.00	0.30
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	48	58	2.37	0.24	0.07	6.82E-03
		Total:										49.14

Year 2029

Year 2029									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	1	288	634	0.93	0.09	0.29	0.03
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	288	15,206	2.37	0.24	18.01	1.80
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	288	346	2.37	0.24	0.41	0.04
		Total:										

Year 2030

Year 2030									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	1	288	634	0.93	0.09	0.29	0.03
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	48	2,534	2.37	0.24	3.00	0.30
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	48	58	2.37	0.24	0.07	6.82E-03
		Total:										

Table C-5
Louisiana International Terminal
Off-Road Vehicle Fugitive Emissions

Year 2031

Year 2031									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	1	288	634	0.93	0.09	0.29	0.03
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	48	2,534	2.37	0.24	3.00	0.30
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	48	58	2.37	0.24	0.07	6.82E-03
		Total:										48.85

Year 2032

Year 2032									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/ Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	288	63,360	0.93	0.09	29.43	2.94
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	1	288	634	0.93	0.09	0.29	0.03
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	24	48	2,534	2.37	0.24	3.00	0.30
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	288	34,560	0.93	0.09	16.05	1.61
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	48	58	2.37	0.24	0.07	6.82E-03
		Total:										48.85

Year 2033

Year 2033									Emission Factors (lb/VMT) ^[2]		Emissions (tpy) ^[3]	
Parish	Facility	Equipment Type	Fuel	Vehicle Duty Type	Unpaved Access Roads (miles) ^[1]	Average Number of Vehicles	Number of Trips/Vehicle	Total Miles/Year	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
St. Bernard	Wharf and Ramps	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	2.2	100	240	52,800	0.93	0.09	24.53	2.45
		Light Duty Construction	Gasoline	Light Duty Vehicles	2.2	1	240	528	0.93	0.09	0.25	0.02
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	2.2	20	40	1,760	2.37	0.24	2.08	0.21
	Landside Features	Commuter Passenger Truck	Gasoline	Light Duty Vehicles	1.2	100	240	28,800	0.93	0.09	13.38	1.34
		Heavy Duty Construction	Diesel	Heavy Duty Vehicles	1.2	8	40	48	2.37	0.24	0.06	5.68E-03
		Total:										40.29

Notes:

[1] Unpaved distance is a conservative estimate based upon the total path distance from the nearest paved road to the wharf construction area x 2 for wharf and ramps and the furthest site boundary x 2 for the landside features.

[2] Calculated on Table 9A-4.

[3] Emissions (ton/yr) = (Unpaved Access Roads (miles) x Emission Factor (lb/VMT)) / 2,000 (lb/ton).

Table C-6
Louisiana International Terminal
Earthmoving Annual Emissions

Parish	Site	Activity	VMT ^[1]	Emission Factor Calculation					Emission Factor ^[7]		
				Scaling Factors ^[3]		S ^[4]	M ^[5]	S ^[6]	PM ₁₀ ^[8]	PM _{2.5} ^[9]	Unit
				PM ₁₀	PM _{2.5}						
St. Bernard	Wharf and Ramps	Bulldozing	--	0.75	0.105	8.5	3.4	--	3.35	1.59	lb/hr
		Grading	99.00	0.6	0.031	--	--	5	0.77	0.07	lb/VMT
	Landside Features	Bulldozing	--	0.75	0.105	8.5	3.4	--	3.35	1.59	lb/hr
		Grading	2,253.71	0.6	0.031	--	--	5	0.77	0.07	lb/VMT

Total Emissions

Year	Hours Active ^[2]	Emissions (tpy) ^[10]									
		Wharf and Ramps				Landside Features				Total	
		Bulldozing		Grading		Bulldozing		Grading			
		PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
2025	0	--	--	0.04	3.43E-03	--	--	0.86	0.08	0.90	0.08
2026	3,072	5.15	2.44	0.04	3.43E-03	5.15	2.44	0.86	0.08	11.19	4.97
2027	9,216	15.44	7.33	0.04	3.43E-03	15.44	7.33	0.86	0.08	31.78	14.74
2028	9,216	15.44	7.33	0.04	3.43E-03	15.44	7.33	0.86	0.08	31.78	14.74
2029	9,216	15.44	7.33	0.04	3.43E-03	15.44	7.33	0.86	0.08	31.78	14.74
2030	9,216	15.44	7.33	0.04	3.43E-03	15.44	7.33	0.86	0.08	31.78	14.74
2031	9,216	15.44	7.33	0.04	3.43E-03	15.44	7.33	0.86	0.08	31.78	14.74
2032	9,216	15.44	7.33	0.04	3.43E-03	15.44	7.33	0.86	0.08	31.78	14.74
2033	1,536	2.57	1.22	0.04	3.43E-03	2.57	1.22	0.86	0.08	6.05	2.52

Notes:

[1] VMT = area under construction (acres) x 0.0015625 (mile/acre) / (5 ft grader clearance / 54,280 ft/mi) x 2 times over the surface.

[2] Hours = Months of Construction x vehicles/month x 4 wk/mo x 6 day/wk x 12 hr/day. This is a conservative estimate as bulldozing will not occur every day during the project.

[3] Scaling Factors from AP-42 11.9-1 for Bulldozing Overburden and Grading. PM₁₀ scaling factor is multiplied by the 15um emission formula. PM_{2.5} scaling factor is multiplied by the TSP emission formula.

[4] Silt content (s) from AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Table 13.2.2-1: Typical Silt Content Values of Surface Material on Industrial Unpaved Roads, mean value for construction sites.

[5] Material moisture content (M) from AP-42 13.2 for western surface coal mining, exposed ground, mean.

[6] Mean vehicle speed (S) in miles per hour is estimated based upon operating speed guidance of 3-5 mph in Gravel Roads Construction & Maintenance Guide Section 1.3, Federal Highway Administration, August 2015.

[7] Emission factors from AP-42 Table 11.9.1 Emission Factor Equations for Uncontrolled Open Dust Sources at Western Surface Coal Mines (per AP-42 Table 13.2.3-1 Recommended Emission Factors for Construction Operations).

[8] PM₁₀ Emission Factor for Bulldozing (lb/hr) = Scaling Factor (0.75) x (1.0(s)^{1.5} / M^{1.4})

PM₁₀ Emission Factor for Grading (lb/VMT) = Scaling Factor (0.6) x (0.051(S)^{2.0})

[9] PM_{2.5} Emission Factor for Bulldozing (lb/hr) = Scaling Factor (0.105) x (5.7(s)^{1.2} / M^{1.3})

PM_{2.5} Emission Factor for Grading (lb/VMT) = Scaling Factor (0.031) x (0.040(S)^{2.5})

[10] Emissions (tpy) = (Emission Factor (lb/hr or lb/VMT) x Hours or VMT / 2,000 (lb/ton).

Table C-7
Louisiana International Terminal
Construction Activity Emissions

Parish	Site	Construction Area (acres) ^[1]	Control Efficiency (%) ^[4]	Emission Factors (ton/acre-month)	
				PM ₁₀ ^[2]	PM _{2.5} ^[3]
St. Bernard	Wharf and Ramps	30	50%	0.11	0.011
	Landside Features	682.9	50%	0.11	0.011

Total Emissions

Year	Months Active	Emissions (tpy) ^[5]					
		Wharf and Ramps		Landside Features		Total	
		PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
2025	4	6.60	0.66	150.25	15.02	156.85	15.68
2026	12	19.80	1.98	450.74	45.07	470.54	47.05
2027	12	19.80	1.98	450.74	45.07	470.54	47.05
2028	12	19.80	1.98	450.74	45.07	470.54	47.05
2029	12	19.80	1.98	450.74	45.07	470.54	47.05
2030	12	19.80	1.98	450.74	45.07	470.54	47.05
2031	12	19.80	1.98	450.74	45.07	470.54	47.05
2032	12	19.80	1.98	450.74	45.07	470.54	47.05
2033	10	16.50	1.65	375.62	37.56	392.12	39.21

Notes:

[1] Area under construction is based on the total land affected during construction. Approximately 400 acres of the landside construction area will utilize river sand as surcharge to to consolidate the soil.

[2] WRAP Fugitive Dust Handbook, Countess Environmental, September 2006, Table 3-2, level 1, average conditions.

[3] PM_{2.5} = 0.1 x PM₁₀ per WRAP Fugitive Dust Handbook, Section 3.4.1.

[4] 50% control efficiency assumed for water and other approved dust suppressants per WRAP Fugitive Dust Handbook, Section 3.4.1.

[5] Emissions (tpy) = Construction Area (acres) x Month Active x Emission Factor x Control Efficiency (%)

Table C-8
Louisiana International Terminal
Storage Pile Erosion Fugitive Emissions

Emission Factor Calculation

Parish	Site	Pile Size (acres) ^[1]	Emission Factor Calculation					Control Efficiency (%) ^[6]	Emission Factor (lb/day/acre) ^[7]	
			k ^[2]		s ^[3]	p ^[4]	f ^[5]		PM ₁₀	PM _{2.5}
			PM ₁₀	PM _{2.5}						
St. Bernard	Wharf and Ramps	0.06	0.5	0.075	8.5	120	28	50.00%	4.69	0.70
	Landside Features	0.06	0.5	0.075	8.5	120	28	50.00%	4.69	0.70

Total Emissions

Year	Days Active ^[8]	Emissions (tpy) ^[9]					
		Wharf and Ramps		Landside Features		Total	
		PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
2025	96	0.01	1.94E-03	0.01	1.94E-03	0.03	3.87E-03
2026	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2027	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2028	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2029	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2030	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2031	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2032	288	0.04	5.81E-03	0.04	5.81E-03	0.08	1.16E-02
2033	240	0.03	4.84E-03	0.03	4.84E-03	0.06	9.68E-03

Notes:

[1] One stockpile for each site, 50ft by 50ft. Size (acres) = (50 ft x 50 ft) / 43,560 ft²/acre.

[2] Particle size multiplier (k) factors from AP-42 13.2.5 Industrial Wind Erosion, Section 13.2.5.3 Predictive Emission Factor Equation.

[3] Silt content (s) from AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Table 13.2.2-1: Typical Silt Content Values of Surface Material on Industrial Unpaved Roads, mean value for construction sites.

[4] Number of days with at least 0.01 in or precipitation per year (p) from AP-42 13.2.2.2 Emissions Calculation and Correction Parameters, Figure 13.2.2-1: Mean number of days with 0.01 inch or more of precipitation in United States.

[5] The percentages of time that unobstructed wind speed exceed 12 mph at the mean pile height (f) were calculated for each county based upon daily wind speed values from January 1, 2023 to December 31, 2023 for New Orleans Lakefront Airport. Wind speed values were downloaded from National Oceanic and Atmospheric Administration's National Centers for Environmental Information Local Climatological Data (LCD) tool, accessible at <https://www.ncei.noaa.gov/products/land-based-station/local-climatological-data>.

[6] 50% control efficiency assumed for water and other approved dust suppressants per WRAP Fugitive Dust Handbook, Section 3.4.1.

[7] EF (lb/day/acre) = k x 1.7 x (s/1.5) x ((365 - p)/235) x (f/15) x (1-Control Efficiency) per Fugitive Dust Background and Technical Information Document for Best Available Control Measures, Section 2.3.1.3.3, Wind Emissions from Continuously Active Piles, USEPA, 1992.

[8] Days Active = number of months of construction x 4 weeks/mo x 6 day construction schedule/wk. This is a conservative estimate as spoil material will be hauled off-site.

[9] Emissions (tpy) = (Emission Factor (lb/day/acre) x Pile Size (acres) x Days Active (day)) / 2,000 (lb/ton).

Table C-9.1
General Plant Information

This worksheet is used to document the material composition and maximum expected production level. The

Operating Schedule	hours/day	days/week	weeks/year	hours/year	days/yr
2026	16	6	20	1920	120
2027-2032	16	6	52	4992	312
2033	16	6	24	2304	144

Concrete Production Rate	yd ³ / hour	yd ³ / year
2026	300	576,000
2027-2032	300	1,497,600
2033	300	691,200

Type of Batch Plant	Central Mix
---------------------	-------------

Concrete Composition

Material	Default (lbs/yd ³)
Aggregate	1,865
Sand	1,428
Cement	491
Supplement	73

Maximum Material Mass Flow Rate

Material	Year:	2026	2027-2032	2033
	ton/hr	ton/yr		
Aggregate	279.8	537,120.0	1,396,512.0	644,544.0
Sand	214.2	411,264.0	1,069,286.4	493,516.8
Cement	73.7	141,408.0	367,660.8	169,689.6
Supplement	11.0	21,024.0	54,662.4	25,228.8

Table C-9.2

Material Handling & Stockpile Emissions

Material Handling - Coarse Aggregate Transfer Points

Enter the number of Aggregate Transfer Points	2
Use the maximum material mass flow rate?	Yes

Mass Flow Rate	2026	2027-2032	2033
Maximum Mass Flow Rate (ton/hr)	280	280	280
Maximum Mass Flow Rate (ton/yr)	537,120	1,396,512	644,544

Emission Point Number		AGG1	AGG2
Control Efficiency (%)		98	98
PM (lb/hr)		0.0386	0.0386
PM (ton/yr)	2026	0.0371	0.0371
	2027-2032	0.0964	0.0964
	2033	0.0445	0.0445
PM ₁₀ (lb/hr)		0.0185	0.0185
PM ₁₀ (ton/yr)	2026	0.0177	0.0177
	2027-2032	0.0461	0.0461
	2033	0.0213	0.0213
PM _{2.5} (lb/hr)		0.0028	0.0028
PM _{2.5} (ton/yr)	2026	0.0027	0.0027
	2027-2032	0.0070	0.0070
	2033	0.0032	0.0032

Material Handling - Sand Transfer Points

Enter the number of Sand Transfer Points	2
Use the maximum material mass flowrate?	Yes

Mass Flow Rate	2026	2027-2032	2033
Maximum Mass Flow Rate (ton/hr)	214	214	214
Maximum Mass Flow Rate (ton/yr)	411,264	1,069,286	493,517

Emission Point Numbers		SAND1	SAND2
Control Efficiency (%)		90	90
PM (lb/hr)		0.0450	0.0450
PM (ton/yr)	2026	0.0432	0.0432
	2027-2032	0.1123	0.1123
	2033	0.0518	0.0518
PM ₁₀ (lb/hr)		0.0212	0.0212
PM ₁₀ (ton/yr)	2026	0.0204	0.0204
	2027-2032	0.0529	0.0529
	2033	0.0244	0.0244
PM _{2.5} (lb/hr)		0.0032	0.0032
PM _{2.5} (ton/yr)	2026	0.0031	0.0031
	2027-2032	0.0080	0.0080
	2033	0.0037	0.0037

Raw Material Stockpile Emissions	Year		
	2026	2027-2032	2033
Stockpile Emission Point Number	SP1	SP1	SP1
Stockpile Area (acres)	0.75	0.75	0.75
Control Efficiency (%)	50	50	50
Number of Active Days per Year	120	312	144
PM Inactive Emissions (ton/yr)	0.1608	0.0348	0.1450
PM ₁₀ Inactive Emissions (ton/yr)	0.0804	0.0174	0.0725
PM _{2.5} Inactive Emissions (ton/yr)	0.0121	0.0026	0.0109
PM Active Emissions (ton/yr)	0.2970	0.7722	0.3564
PM ₁₀ Active Emissions (ton/yr)	0.1485	0.3861	0.1782
PM _{2.5} Active Emissions (ton/yr)	0.0223	0.0579	0.0267
TOTAL PM Emissions (ton/yr)	0.4578	0.8070	0.5014
TOTAL PM₁₀ Emissions (ton/yr)	0.2289	0.4035	0.2507
TOTAL PM_{2.5} Emissions (ton/yr)	0.0343	0.0605	0.0376

Table C-9.3
Silo Emissions

This worksheet is used to calculate emissions from storage silos. Enter the requested information in the input cells below, or if prompted, select the appropriate answer from the drop-down menu provided.

Cement Silo Emissions

How many cement silos? (Up to 4)	2
Would you like to use the manufacturer's filter efficiency?	No

Emission Factors - Cement Silo		
lb _{PM} /ton	lb _{PM10} /ton	lb _{PM2.5} /ton
0.00099	0.00034	0.00006

Cement Silo EPN(s)		CSILO1	CSILO2
Hourly Loading Rate (ton/hr)		74	74
Annual Loading Rate (ton/yr)	2026	141,408	141,408
	2027-2032	367,661	367,661
	2033	169,690	169,690
2026-2033			
PM (lb/hr)		0.0729	0.0729
PM ₁₀ (lb/hr)		0.0250	0.0250
PM _{2.5} (lb/hr)		0.0043	0.0043
2026			
PM (ton/yr)		0.0700	0.0700
PM ₁₀ (ton/yr)		0.0240	0.0240
PM _{2.5} (ton/yr)		0.0041	0.0041
2027-2032			
PM (ton/yr)		0.1820	0.1820
PM ₁₀ (ton/yr)		0.0625	0.0625
PM _{2.5} (ton/yr)		0.0107	0.0107
2033			
PM (ton/yr)		0.0840	0.0840
PM ₁₀ (ton/yr)		0.0288	0.0288
PM _{2.5} (ton/yr)		0.0049	0.0049

Table C-9.3
Silo Emissions

This worksheet is used to calculate emissions from storage silos. Enter the requested information in the input cells below, or if prompted, select the appropriate answer from the drop-down menu provided.

Supplement Silo Emissions

How many supplement silos? (Up to 4)	2
Would you like to use the manufacturer's filter efficiency?	No

Emission Factors - Supplement Silo		
lb _{PM} /ton	lb _{PM10} /ton	lb _{PM2.5} /ton
0.0089	0.0049	0.0008

Cement Supplement Silo EPN(s)		SSILO1	SSILO2
Hourly Loading Rate (ton/hr)		11	11
Annual Loading Rate (ton/yr)	2026	21,024	21,024
	2027-2032	54,662	54,662
	2033	25,229	25,229
2026-2033			
PM (lb/hr)		0.0975	0.0975
PM10 (lb/hr)		0.0537	0.0537
PM2.5 (lb/hr)		0.0092	0.0092
2026			
PM (ton/yr)		0.0936	0.0936
PM10 (ton/yr)		0.0515	0.0515
PM2.5 (ton/yr)		0.0088	0.0088
2027-2032			
PM (ton/yr)		0.2432	0.2432
PM10 (ton/yr)		0.1339	0.1339
PM2.5 (ton/yr)		0.0229	0.0229
2033			
PM (ton/yr)		0.1123	0.1123
PM10 (ton/yr)		0.0618	0.0618
PM2.5 (ton/yr)		0.0106	0.0106

Table C-9.4
Loading and Baghouse Emissions

Central Mix Loading Information	
What is the EPN for fugitive emissions from central/truck mixer	FUG
What is the central baghouse stack EPN?	BH1
What is the central baghouse efficiency? (%)	98
Use the Default Suction Shroud Capture Efficiency?	Yes

Default Capture Efficiency % =	97.3
---------------------------------------	-------------

Maximum Throughput

Year		2026	2027-2032	2033
Material	ton/hr	ton/yr	ton/yr	ton/yr
Aggregate	280	537,120	1,396,512	644,544
Sand	214	411,264	1,069,286	493,517
Cement	74	141,408	367,661	169,690
Supplement	11	21,024	54,662	25,229

Mixer Loading Emission Factors		
lb _{PM} /ton	lb _{PM10} /ton	lb _{PM2.5} /ton
0.572	0.156	0.018

Pollutant		Central Baghouse Stack Emission Rates	Mixer Loading Fugitive Emission Rates
PM (lb/hr)		0.9417	1.3066
PM (ton/yr)	2026	0.9040	1.2543
	2027-2032	2.3505	3.2612
	2033	1.0848	1.5052
PM10 (lb/hr)		0.2568	0.3563
PM10 (ton/yr)	2026	0.2466	0.3421
	2027-2032	0.6410	0.8894
	2033	0.2959	0.4105
PM2.5 (lb/hr)		0.0296	0.0411
PM2.5 (ton/yr)	2026	0.0284	0.0395
	2027-2032	0.0740	0.1026
	2033	0.0341	0.0474

Table C-9.5
Concrete Batch Plant Emissions Summary Table

Emission Point Number(s)	Name	PM		PM ₁₀		PM _{2.5}	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
2026							
AGG1, AGG2, SAND1, SAND2	Material Handling	0.167	0.160	0.079	0.076	0.012	0.012
SP1	Stockpiles	--	0.458	--	0.229	--	0.034
BH1	Central Baghouse Stack	0.942	0.904	0.257	0.247	0.030	0.028
FUG	Loading Fugitives	1.307	1.254	0.356	0.342	0.041	0.039
CSILO1	Cement Silo #1	0.073	0.070	0.025	0.024	0.004	0.004
CSILO2	Cement Silo #2	0.073	0.070	0.025	0.024	0.004	0.004
SSILO1	Supplement Silo #1	0.097	0.094	0.054	0.052	0.009	0.009
SSILO2	Supplement Silo #2	0.097	0.094	0.054	0.052	0.009	0.009
Concrete Batch Plant Total		2.756	3.104	0.850	1.045	0.110	0.140
2027-2032							
AGG1, AGG2, SAND1, SAND2	Material Handling	0.167	0.417	0.079	0.198	0.012	0.030
SP1	Stockpiles	--	0.807	--	0.403	--	0.061
BH1	Central Baghouse Stack	0.942	2.350	0.257	0.641	0.030	0.074
FUG	Loading Fugitives	1.307	3.261	0.356	0.889	0.041	0.103
CSILO1	Cement Silo #1	0.073	0.182	0.025	0.063	0.004	0.011
CSILO2	Cement Silo #2	0.073	0.182	0.025	0.063	0.004	0.011
SSILO1	Supplement Silo #1	0.097	0.243	0.054	0.134	0.009	0.023
SSILO2	Supplement Silo #2	0.097	0.243	0.054	0.134	0.009	0.023
Concrete Batch Plant Total		2.756	7.686	0.850	2.525	0.110	0.334
2033							
AGG1, AGG2, SAND1, SAND2	Material Handling	0.167	0.193	0.079	0.091	0.012	0.014
SP1	Stockpiles	--	0.501	--	0.251	--	0.038
BH1	Central Baghouse Stack	0.942	1.085	0.257	0.296	0.030	0.034
FUG	Loading Fugitives	1.307	1.505	0.356	0.410	0.041	0.047
CSILO1	Cement Silo #1	0.073	0.084	0.025	0.029	0.004	0.005
CSILO2	Cement Silo #2	0.073	0.084	0.025	0.029	0.004	0.005
SSILO1	Supplement Silo #1	0.097	0.112	0.054	0.062	0.009	0.011
SSILO2	Supplement Silo #2	0.097	0.112	0.054	0.062	0.009	0.011
Concrete Batch Plant Total		2.756	3.677	0.850	1.230	0.110	0.164

Table C-10
Summary of Estimated Emissions from Operation of the Louisiana International Terminal

Source	PM ₁₀	PM _{2.5}	VOCs	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e (tpy)
Scenario 1: OGVs Use Engine Power during Hoteling											
Ocean Going Vessels (OGV)	34.31	34.31	154.14	278.37	48.42	2,347.53	154.14	90,415.03	3.39	2.21	91,480.06
Harbor Craft	2.73	2.64	4.01	15.35	0.02	36.61	4.01	2,537.97	0.03	0.08	2,549.31
Cargo Handling Equipment (CHE)	1.38	1.34	1.94	5.98	0.12	83.83	0.81	44,694.51	0.07	0.16	44,720.70
Container-On-Barge	9.27	8.99	13.63	52.21	0.08	124.50	13.63	8,631.81	0.12	0.26	8,670.39
Onroad Vehicles	1.71	1.57	48.02	4.59	1.85	7.55	0.78	539,819.57	70.83	0.13	558,593.06
Rail	1.17	1.13	1.77	4.69	0.02	24.59	1.77	1,796.19	0.05	0.14	1,812.07
Emergency Generator	1.74E-04	1.74E-04	0.27	0.72	1.33E-03	9.23	0.16	264.67	4.99E-04	4.99E-03	264.94
Total Project Operational Emissions Without the Use of Shore Power	50.56	49.98	223.78	361.92	50.51	2,633.84	175.30	688,159.75	74.49	2.98	708,090.55
Scenario 2: OGVs Use Shore Power during Hoteling											
Ocean Going Vessels (OGV)	28.91	28.91	151.68	235.07	48.31	2,163.32	151.68	78,551.06	3.37	2.16	79,608.52
Harbor Craft	2.73	2.64	4.01	15.35	0.02	36.61	4.01	2,537.97	0.03	0.08	2,549.31
Cargo Handling Equipment (CHE)	1.38	1.34	1.94	5.98	0.12	83.83	0.81	44,694.51	0.07	0.16	44,720.70
Container-On-Barge	9.27	8.99	13.63	52.21	0.08	124.50	13.63	8,631.81	0.12	0.26	8,670.39
Onroad Vehicles	1.71	1.57	48.02	4.59	1.85	7.55	0.78	539,819.57	70.83	0.13	558,593.06
Rail	1.17	1.13	1.77	4.69	0.02	24.59	1.77	1,796.19	0.05	0.14	1,812.07
Emergency Generator	1.74E-04	1.74E-04	0.27	0.72	1.33E-03	9.23	0.16	264.67	4.99E-04	4.99E-03	264.94
Total Project Operational Emissions With the Use of Shore Power	45.16	44.59	221.31	318.61	50.40	2,449.64	172.83	676,295.79	74.47	2.94	696,219.00

^a Due to rounding, the totals may not reflect the sum of the addends.

Table C-11

**Louisiana International Terminal
Ocean Going Vessel (OGV) Emissions
Scenario 1: Vessel Engine Power During Hoteling**

Annual Site Capacity (TEU) ^[1]	Maximum Ship Size (TEUs)	Annual No. of Container Vessel Trips
2,000,000	16,000	500
[1] Annual site capacity is based on 500 trips of 16,000 TEU vessels unloading, on average, 4,000 TEUs at the site.		

Engine Type	Mode	Power ^[1]	Max Speed ^[2]
		kw	kn
Propulsion	All	49,000	26.5
Auxiliary	Transit	2,160	
	Maneuvering	3,670	
	Hotelling	1,320	
[1] Engine power is from Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions for the largest container ship type. Propulsion engine power is from Appendix C and auxiliary engine power is from Appendix E Table E.1. [2] Maximum speed is from Appendix C in Port Emissions Inventory Guidance for the largest container ship type.			

Propulsion Engine Load Factor ^[1]

Mode	Average Speed ^[2]	Load Factor ^{[3],[4]}	Load ^[5]
	(kn)		(kW)
Transit	--	74%	39,886.0
Maneuvering	8	3%	1,482.9
[1] Hoteling not included as propulsion engines are off during hoteling. [2] Assumed per Table 2-5 in Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories (April 2009). [3] Transit Load Factor from Table 3.12 of Port Emission Inventory Guidance (2022). [4] Maneuvering Load Factor calculated using Propeller's Law: Load Factor = (actual speed / maximum speed) ³ . [5] Equation 3.13 in Port Emission Inventory Guidance (EPA, 2022): PP = Pref * LF * SM Where, SM = Sea Margin (assumed 1.10 for coastal operations)			

Table C-11

Louisiana International Terminal
 Ocean Going Vessel (OGV) Emissions
 Scenario 1: Vessel Engine Power During Hoteling

Table 3.10. C3 Propulsion Engine Low Load Adjustment Factors (unitless) ^[1]						
Load	NO _x	CO	HC	PM	SO ₂	CO ₂
2%	4.63	9.68	21.18	7.29	9.54	3.28
3%	2.92	6.46	11.68	4.33	6.38	2.44
4%	2.21	4.86	7.71	3.09	4.79	2.01
5%	1.83	3.89	5.61	2.44	3.85	1.76
6%	1.60	3.25	4.35	2.04	3.21	1.59
7%	1.45	2.79	3.52	1.79	2.76	1.47
8%	1.35	2.45	2.95	1.61	2.42	1.38
9%	1.27	2.18	2.52	1.48	2.16	1.31
10%	1.22	1.96	2.20	1.38	1.95	1.25
11%	1.17	1.79	1.96	1.30	1.78	1.21
12%	1.14	1.64	1.76	1.24	1.63	1.17
13%	1.11	1.52	1.60	1.19	1.51	1.14
14%	1.08	1.41	1.47	1.15	1.41	1.11
15%	1.06	1.32	1.36	1.11	1.32	1.08
16%	1.05	1.24	1.26	1.08	1.24	1.06
17%	1.03	1.17	1.18	1.06	1.17	1.04
18%	1.02	1.11	1.11	1.04	1.11	1.03
19%	1.01	1.05	1.05	1.02	1.05	1.01
20%	1.00	1.00	1.00	1.00	1.00	1.00
[1] Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1014J1S.pdf .						

Mode	Emission Factor Adjustment Factors at Low Loads ^[1]									
	PM ₁₀	PM _{2.5} ^[2]	VOC ^[3]	CO	SO ₂	NO _x	HAPs ^[4]	CO ₂	N ₂ O ^[5]	CH ₄ ^[3]
Transit	1	1	1	1	1	1	1	1	1	1
Maneuvering	7.29	7.29	21.18	9.68	9.54	4.63	21.18	3.28	4.63	21.18

[1] Table 3.10 from Port Emission Inventory Guidance.

[2] PM₁₀ applies to PM_{2.5}.

[3] HC applies to VOC and CH₄.

[4] HAP assumed equal to VOC.

[5] NO_x applies to N₂O.

[6] Load factor for maneuvering is between 2% and 3%. Conservatively assumed low load adjustment factors for 2% load factor.

**Louisiana International Terminal
Ocean Going Vessel (OGV) Emissions
Scenario 1: Vessel Engine Power During Hoteling**

[1] factors for Category 3 slow-speed diesel (SSD) propulsion engines using MGO or MDO from Section 3.5 of Port Emission Inventory Guidance (EPA, 2022).
 [2] PM_{2.5} emission factor conservatively assumed same as PM₁₀.
 [3] VOC emission factor = 1.053 x HC emission factors from Table 3.8.
 [4] HAPs emission factor conservatively assumed same as VOC.
 [5] CH₄ emission factor = 2% of HC emission factors from Table 3.8.

App E Table E.1 ^[1]	
Auxiliary Engine Operating Loads (kW)	
Transit	2,160
Maneuvering	3,670
Hotelling	1,320

[1] For container ships with largest TEU capacity.

[1] It was assumed that engines would meet EPA Tier I or Tier 2 engine standards and category 1 boats.

**Louisiana International Terminal
Ocean Going Vessel (OGV) Emissions
Scenario 1: Vessel Engine Power During Hoteling**

[1] Based on a conservative assumption of the distance traveled within the Louisiana International Terminal's jurisdiction.

[2] Based on a typical duration of 4 hours with a 50% safety factor applied.

[3] Number of hours = 2,500 TEU moves/ship * 4 cranes * 30 moves/hour/crane * safety factor (15%).

[1] Emissions converted from grams to tons by multiplying by a factor of 1.1×10^{-6} .
 [2] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.
 [3] Propulsion Engine Emissions = Trips x Power x LF in Mode x Time in mode x EF
 [4] Auxiliary Engine Emissions = Power in mode x time x EF

Table C-12

**Louisiana International Terminal
Ocean Going Vessel (OGV) Emissions
Scenario 2: Shore Power Used During Hoteling**

Annual Site Capacity (TEU) ^[1]	Maximum Ship Size (TEUs)	Annual No. of Container Vessel Trips
2,000,000	16,000	500
[1] Annual site capacity is based on 500 trips of 16,000 TEU vessels unloading, on average, 4,000 TEUs at the site.		

Engine Type	Mode	Power ^[1]	Max Speed ^[2]
		kw	kn
Propulsion	All	49,000	26.5
Auxiliary	Transit	2,160	
	Maneuvering	3,670	
[1] Engine power is from Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions for the largest container ship type. Propulsion engine power is from Appendix C and auxiliary engine power is from Appendix E Table E.1.			
[2] Maximum speed is from Appendix C in Port Emissions Inventory Guidance for the largest container ship type.			

Propulsion Engine Load Factor ^[1]

Mode	Average Speed	Load Factor ^{[3],[4]}	Load ^[5]
	(kn)		(kW)
Transit	--	74%	39,886.0
Maneuvering	8	3%	1,482.9
[1] Hoteling not included due to planned use of shore power. [2] Assumed per Table 2-5 in Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories (April 2009). [3] Transit Load Factor from Table 3.12 of Port Emission Inventory Guidance (2022). [4] Maneuvering Load Factor calculated using Propeller's Law: Load Factor = (actual speed / maximum speed) ³ . [5] Equation 3.13 in Port Emission Inventory Guidance (EPA, 2022): PP = Pref * LF * SM Where, SM = Sea Margin (assumed 1.10 for coastal operations)			

Table C-12

Louisiana International Terminal
 Ocean Going Vessel (OGV) Emissions
 Scenario 2: Shore Power Used During Hoteling

Table 3.10. C3 Propulsion Engine Low Load Adjustment Factors (unitless) ^[1]						
Load	NO _x	CO	HC	PM	SO ₂	CO ₂
2%	4.63	9.68	21.18	7.29	9.54	3.28
3%	2.92	6.46	11.68	4.33	6.38	2.44
4%	2.21	4.86	7.71	3.09	4.79	2.01
5%	1.83	3.89	5.61	2.44	3.85	1.76
6%	1.60	3.25	4.35	2.04	3.21	1.59
7%	1.45	2.79	3.52	1.79	2.76	1.47
8%	1.35	2.45	2.95	1.61	2.42	1.38
9%	1.27	2.18	2.52	1.48	2.16	1.31
10%	1.22	1.96	2.20	1.38	1.95	1.25
11%	1.17	1.79	1.96	1.30	1.78	1.21
12%	1.14	1.64	1.76	1.24	1.63	1.17
13%	1.11	1.52	1.60	1.19	1.51	1.14
14%	1.08	1.41	1.47	1.15	1.41	1.11
15%	1.06	1.32	1.36	1.11	1.32	1.08
16%	1.05	1.24	1.26	1.08	1.24	1.06
17%	1.03	1.17	1.18	1.06	1.17	1.04
18%	1.02	1.11	1.11	1.04	1.11	1.03
19%	1.01	1.05	1.05	1.02	1.05	1.01
20%	1.00	1.00	1.00	1.00	1.00	1.00

[1] Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1014J1S.pdf>.

Mode	Emission Factor Adjustment Factors at Low Loads ^[1]									
	PM ₁₀	PM _{2.5} ^[2]	VOC ^[3]	CO	SO ₂	NO _x	HAPs ^[4]	CO ₂	N ₂ O ^[5]	CH ₄ ^[3]
Transit	1	1	1	1	1	1	1	1	1	1
Maneuvering ^[6]	7.29	7.29	21.18	9.68	9.54	4.63	21.18	3.28	4.63	21.18

[1] Table 3.10 from Port Emission Inventory Guidance.
 [2] PM₁₀ applies to PM_{2.5}.
 [3] HC applies to VOC and CH₄.
 [4] HAP assumed equal to VOC.
 [5] NO_x applies to N₂O.
 [6] Load factor for maneuvering is between 2% and 3%. Conservatively assumed low load adjustment factors for 2% load factor.

Table C-12
Louisiana International Terminal
Ocean Going Vessel (OGV) Emissions
Scenario 2: Shore Power Used During Hoteling

	Propulsion Engine Emission Factors (g/kWh) ^[1]									
	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄
Emission Factor	0.14	0.14	0.63	1.04	0.27	12.68	0.63	442.28	0.02	0.01
Emission Factor Reference	Eqn. 3.3	[2]	Table 3.8 ^[3]	Table 3.8	Eqn. 3.5 & Table 3.6	Table 3.5	[4]	Eqn. 3.4 & Table 3.6	Table 3.9	Table 3.8 ^[5]

[1] factors for Category 3 slow-speed diesel (SSD) propulsion engines using MGO or MDO from Section 3.5 of Port Emission Inventory Guidance (EPA, 2022).

[2] PM_{2.5} emission factor conservatively assumed same as PM₁₀.

[3] VOC emission factor = 1.053 x HC emission factors from Table 3.8.

[4] HAPs emission factor conservatively assumed same as VOC.

[5] CH₄ emission factor = 2% of HC emission factors from Table 3.8.

Auxiliary Engine Power in Mode

App E Table E.1 ^[1]	
Auxiliary Engine Operating Loads (kW)	
Transit	2,160
Maneuvering	3,670

[1] For container ships with largest TEU capacity.

Appendix H: Auxiliary Engine Emission Factors (g/kWh) ^[1]									
PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄
0.31	0.31	0.14	2.48	6.25E-03	10.55	0.14	679.47	1.23E-03	2.70E-03

[1] It was assumed that engines would meet EPA Tier I or Tier 2 engine standards and category 1 boats.

Louisiana International Terminal
Ocean Going Vessel (OGV) Emissions
Scenario 2: Shore Power Used During Hoteling

Mode	Average Operating Hours
Transit ^[1]	6.0
Maneuvering ^[2]	6.0

[1] Based on a conservative assumption of the distance traveled within the Louisiana International Terminal's jurisdiction.

[2] Based on a typical duration of 4 hours with a 50% safety factor applied.

Operating Mode	Estimated Emissions from Container Ships (TPY) ^[1]										
	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[2]
Propulsion Engine ^[3]											
Transit	18.06	18.06	83.33	137.70	35.57	1,672.09	83.33	58,337.17	2.85	1.18	59,126.11
Maneuvering	4.89	4.89	65.62	49.56	12.62	287.83	65.62	7,114.10	0.49	0.93	7,270.24
Auxiliary Engine ^[4]											
Transit	2.21	2.21	1.01	17.71	0.04	75.36	1.01	4,853.44	0.01	0.02	4,856.31
Maneuvering	3.75	3.75	1.71	30.10	0.08	128.04	1.71	8,246.35	0.01	0.03	8,251.23
Combined											
Transit	20.27	20.27	84.34	155.42	35.62	1,747.45	84.34	63,190.61	2.86	1.20	63,982.42
Maneuvering	8.64	8.64	67.33	79.66	12.69	415.87	67.33	15,360.45	0.51	0.96	15,521.47
Total Annual Emissions	28.91	28.91	151.68	235.07	48.31	2,163.32	151.68	78,551.06	3.37	2.16	79,608.52

[1] Emissions converted from grams to tons by multiplying by a factor of 1.1x10⁻⁶.

[2] CO2e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

[3] Propulsion Engine Emissions = Trips x Power x LF in Mode x Time in mode x EF

[4] Auxiliary Engine Emissions = Power in mode x time x EF

Table C-13
Louisiana International Terminal
Harbor Craft Emissions

Operational Year: 2028					Hours ^[1]	Emission Factors (g/hp-hr) ^[4]										Tons per year (tpy)										
Actual Description	Fuel	Engine Rating (hp) ^[1]	Load Factor ^[2]	Adjusted Horsepower ^[2]		PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ^[5]	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[6]
Marine Vessels																										
Tugboat	Diesel	5,400	50%	2,700.0	1,683	0.54	0.53	0.80	3.06	4.66E-03	7.31	0.80	506.68	6.94E-03	0.02	2.73	2.64	4.01	15.35	0.02	36.61	4.01	2,537.97	0.03	0.08	2,549.31
Total:																2.73	2.64	4.01	15.35	0.02	36.61	4.01	2,537.97	0.03	0.08	2,549.31

Notes:

[1] Engine rating is based on the maximum typical tugboat engine rating at the Nashville Napoleon terminal.

[2] Engine hours are from Table G.1 in Appendix G of Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1014J1S.pdf>.

[3] Load factors are from Table 4.4 of Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1014J1S.pdf>.

[4] Marine vessel emission factors are from Appendix H of Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1014J1S.pdf>. It was assumed that all vessels are Category 1 boats, which comprise the vast majority of harbor vessels. Maximum emission factors meeting this criteria have been converted from g/kWh to g/hp-hr by multiplying by 0.7457. HAP emissions were conservatively assumed to be equal to VOC emissions.

[5] In order to estimate N₂O emissions, the g/hp-hr factor for CH₄ was multiplied by a ratio of 0.26 (g N₂O/gal fuel) / 0.57 (g CH₄/gal fuel). The g/gallon of fuel factors were sourced from diesel construction/mining equipment in the Guidance document titled "Direct Emissions from Mobile Combustion

[6] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

Table C-14
Louisiana International Terminal
Off-Road Equipment Emissions

Year: 2028

Year: 2028							Hours ^[2]	Emission Factors (g/hp-hr) ^[3]									
Actual Description	MOVES Nonroad Equipment Type	SCC Code	Fuel	Engine Rating (hp)	Load Factor ^[1]	Adjusted Horsepower ^[1]		PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ^[4]	CH ₄
Nonroad Equipment																	
Forklifts	Forklifts	2270003020	Diesel	225	59%	132.8	69,350	0.01	0.01	0.02	0.08	1.51E-03	1.04	8.34E-03	573.98	1.26E-03	2.76E-03
Generator Sets	Generator Sets	2270006005	Diesel	69	43%	29.7	144	0.14	0.13	0.21	0.84	1.72E-03	2.55	0.08	568.67	5.57E-03	0.01
Off-highway Trucks	Off-highway Trucks	2270002051	Diesel	300	59%	177.0	229,950	0.02	0.02	0.03	0.06	1.42E-03	1.38	0.01	536.76	9.57E-04	2.10E-03
Other General Industrial Equipment	Other General Industrial Equipment	2270003040	Diesel	2000	43%	860.0	7,300	0.02	0.02	0.03	0.13	1.47E-03	0.63	0.01	546.77	1.07E-03	2.34E-03
Pumps	Pumps	2270006010	Diesel	500	43%	215.0	389	0.15	0.15	0.21	0.88	1.72E-03	2.51	0.09	568.25	5.48E-03	0.01
Yard/Jockey/Mule Tractors	Terminal Tractors	2270003070	Diesel	156	39%	60.8	292,000	8.48E-03	8.22E-03	0.01	0.04	1.43E-03	0.28	3.39E-03	544.15	3.49E-04	7.64E-04
Welders	Welders	2270006025	Diesel	50	21%	10.5	36,500	0.27	0.27	0.41	1.88	2.08E-03	3.21	0.16	693.56	8.97E-03	0.02

Total Emissions				Tons per year (tpy)											
Actual Description	MOVES Nonroad Equipment Type	SCC Code	Fuel	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]	
Nonroad Equipment															
Forklifts	Forklifts	2270003020	Diesel	0.12	0.12	0.20	0.83	0.02	10.54	0.08	5,824.84	0.01	0.03	5,829.01	
Generator Sets	Generator Sets	2270006005	Diesel	6.47E-04	6.27E-04	9.78E-04	3.96E-03	8.10E-06	0.01	4.00E-04	2.68	2.62E-05	5.75E-05	2.69	
Off-highway Trucks	Off-highway Trucks	2270002051	Diesel	0.79	0.76	1.16	2.66	0.06	61.80	0.51	24,081.73	0.04	0.09	24,095.74	
Other General Industrial Equipment	Other General Industrial Equipment	2270003040	Diesel	0.17	0.16	0.18	0.90	0.01	4.36	0.08	3,783.84	7.38E-03	0.02	3,786.24	
Pumps	Pumps	2270006010	Diesel	0.01	0.01	0.02	0.08	1.58E-04	0.23	8.00E-03	52.40	5.06E-04	1.11E-03	52.56	
Yard/Jockey/Mule Tractors	Terminal Tractors	2270003070	Diesel	0.17	0.16	0.21	0.71	0.03	5.54	0.07	10,656.03	6.83E-03	0.01	10,658.26	
Welders	Welders	2270006025	Diesel	0.12	0.11	0.17	0.80	8.81E-04	1.36	0.07	293.00	3.79E-03	8.31E-03	294.24	
Total:				1.38	1.34	1.94	5.98	0.12	83.83	0.81	44,694.51	0.07	0.16	44,718.74	

Notes:

[1] Load factors as recommended for estimation of emissions using NONROAD emission factors in EPA420-P-04-005 Revised April 2004.

[2] Total hours for each piece of equipment is based on daily operating hours x equipment quantity x 365 days/yr.

[3] Emissions for all nonroad sources were calculated based on emission factors derived from USEPA MOVES4 Model for each county for the first year of operation and in the month of July, to be conservative. It was assumed that all vehicles would meet EPA Tier I or Tier 2 engine standards. Maximum emission factors meeting this criteria have been converted from g/kWh to g/hp-hr by multiplying by 0.7457. PM_{2.5} was conservatively assumed to be equal to PM₁₀.

[4] N₂O was not calculated using the MOVES4 NONROAD Model. In order to estimate N₂O emissions, the g/hp-hr factor for CH₄ was multiplied by a ratio of 0.26 (g N₂O/gal fuel) / 0.57 (g CH₄/gal fuel). The g/gallon of fuel factors were sourced from diesel construction/mining equipment in the Inventory Guidance document titled "Direct Emissions from Mobile Combustion Sources", January 2016.

[5] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

Table C-15
Louisiana International Terminal
Container-On-Barge Transit Emissions

Operational Year: 2028						Emission Factors (g/hp-hr) ^[4]										Tons per year (tpy)										
Actual Description	Fuel	Engine Rating (hp) ^[1]	Load Factor ^[2]	Adjusted Horsepower ^[2]	Hours ^[3]	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ^[5]	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[6]
Marine Vessels																										
Container-On-Barge	Diesel	5,400	50%	2,700.0	5,724	0.54	0.53	0.80	3.06	4.66E-03	7.31	0.80	506.68	6.94E-03	0.02	9.27	8.99	13.63	52.21	0.08	124.50	13.63	8,631.81	0.12	0.26	8,670.39
Total:																9.27	8.99	13.63	52.21	0.08	124.50	13.63	8,631.81	0.12	0.26	8,670.39

Notes:

[1] Engine rating is expected based on the range of typical tugboat engine rating at the Nashville Napoleon terminal of 4,000-5,400 HP.

[2] Load factors are from Table 4.4 of Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P101411S.pdf>.

[3] Engine hours are based on 477 tug trips per year and 12 operating hours per tug trip.

[4] Marine vessel emission factors are from Appendix H of Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, EPA, April 2022, accessed at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P101411S.pdf>. It was assumed that all vessels are Category 1 boats, which comprise the vast majority of harbor vessels. Maximum emission factors meeting this criteria have been converted from g/kWh to g/hp-hr by multiplying by 0.7457. HAP emissions were conservatively assumed to be equal to VOC emissions.

[5] In order to estimate N₂O emissions, the g/hp-hr factor for CH₄ was multiplied by a ratio of 0.26 (g N₂O/gal fuel) / 0.57 (g CH₄/gal fuel). The g/gallon of fuel factors were sourced from diesel construction/mining equipment in the guidance document titled "Direct Emissions from Mobile Combustion Sources", January 2016.

[6] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

Table C-16
Louisiana International Terminal
On-Road Emissions

Year: 2028									Emission Factors (lb/mile) ^[1]										Emissions (tpy) ^[3]										
Parish	Equipment Type	MOVES Source Code	Fuel	Source Category	Total Mileage/ Round Trip	Number of Vehicles ^[4]	Number of Round Trips/ Vehicle ^[2]	Total Miles/Year	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[5]
St. Bernard	Commuter Passenger Truck	sourceTypeID 31	Gasoline	Passenger Truck	30	120	365	1,314,000	4.25E-08	3.76E-08	1.57E-05	4.29E-06	3.79E-06	7.48E-09	4.54E-06	0.81	2.76E-06	2.03E-07	2.79E-05	2.47E-05	0.01	2.82E-03	2.49E-03	4.91E-06	2.98E-03	529.69	1.81E-03	1.34E-04	530.17
	Drayage Truck	sourceTypeID 61	Diesel	Combination Short-haul Truck	200	--	78,267	15,653,451	1.01E-06	8.97E-07	1.31E-04	1.62E-05	1.63E-05	8.95E-08	3.80E-05	3.45	2.21E-05	1.42E-06	7.94E-03	7.02E-03	1.02	0.13	0.13	7.00E-04	0.30	27,035.35	0.17	0.01	27,081.43
	Heavy Duty Delivery	sourceTypeID 62	Diesel	Combination Long-Haul Truck	400	--	782,673	313,069,024	1.08E-05	9.98E-06	3.00E-04	2.85E-05	1.10E-05	4.83E-05	3.04E-06	3.27	4.51E-04	7.61E-07	1.70	1.56	46.98	4.46	1.72	7.55	0.48	512,254.53	70.66	0.12	530,981.46
Total ^[7] :																			1.71	1.57	48.02	4.59	1.85	7.55	0.78	539,819.57	70.83	0.13	558,593.06

Notes:

[1] Number of Commuter trucks estimated by the Applicant.

[2] Number of Trips / Vehicle for passenger trucks is conservatively based on 365 days/year of workers commuting to the Port. Heavy duty delivery number of round trips is based on total expected annual truck visits to the Port.

[3] Emissions were calculated based on emission factors derived from USEPA MOVES4 Model for each county for each project year on rural unrestricted roads and in the month of July, to be conservative.

[4] Emissions (ton/yr) = (Total Miles/Year x Emission Factor (lb/mile) / 2,000 (lb/ton)

[5] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

[6] Emissions from idling are included in emission factors taken from MOVES4.

[7] On-road emissions total does not include emissions from vehicles traveling on unpaved roads as the terminal will be paved.

Table C-17

Louisiana International Terminal

Rail Emissions

Annual Rail Capacity ^[1] (TEU)	Train TEU Capacity ^[1]	Annual No. of Trains
338,859	452	750
[1] Provided by Applicant for rail moves at maximum Port capacity in 2050.		

Line-Haul Activity^[1]

Annual No. of Locomotives ^[2]	Average No. of Locomotives Per Train ^[2]	Time Spent on Port (hr)	Load Factor ^[3]	Average Rated Power ^[4] (hp)	Activity ^[5] (hp-hr)
2,249	3	1	0.28	5,000	3,148,690
[1] Conservatively assumed all line-haul rail carriers are Class I, which consist of the largest carriers. [2] Locomotives at port per year = annual no. of TEU by rail / no. of TEU per train x average no. of locomotives per train. [3] National average load factor of 28% for line-haul and 10% for switcher locomotives was assumed, per section 8.4.3 of Port Emission Inventory Guidance (2022). [4] Per the Locomotive Emission Standards Regulatory Support Document (April 1998), "Older line-haul locomotives are typically powered by engines of approximately 2000-3000 hp, while newer line-haul locomotives are powered by engines of approximately 3500-5000 hp." https://nepis.epa.gov/Exe/ZyPDF.cgi/P100F9QT.PDF?Dockey=P100F9QT.PDF. [5] Activity (hp-hr) = Power (HP) * Time Spent on Port (hr) * LF					

Switcher Activity

No. of Trains Visiting Port Annually	Switching Hours per Train ^[1]	No. of Switcher Locomotive Hours ^[2]	Average Switcher Rated Power ^[3] (hp)	Load Factor ^[4]	Activity ^[5] (hp-hr)
2,249	0.182	409.33	3,000	10%	122,799
[1] An average value of 0.182 hours can be assumed, based on an analysis of data from the Federal Railroad Administration. [2] No. of Switcher Locomotive Hours = Switching Hours per Train x Number of Trains per Year. [3] Per the Locomotive Emission Standards Regulatory Support Document (April 1998), "Older line-haul locomotives are typically powered by engines of approximately 2000-3000 hp, while newer line-haul locomotives are powered by engines of approximately 3500-5000 hp." [4] national average load factor of 28% for line-haul and 10% for switcher locomotives was assumed, per section 8.4.3 of Port Emission Inventory Guidance. [5] Activity (HP-hr) = LF x Power (HP) x No. of switcher locomotive hours.					

Diesel Fuel Emission Factors

Locomotive Type	Emission Factors (g/HP-hr)									
	PM ₁₀	PM _{2.5} ^[1]	VOC ^[2]	CO	SO ₂ ^[3]	NO _x	HAPs ^[4]	CO ₂ ^[5]	N ₂ O ^[6]	CH ₄ ^[7]
Line-haul (Class I) ^[8]	0.32	0.31	0.47	1.28	4.52E-03	6.70	0.47	491.26	0.01	0.04
Switcher ^[9]	0.43	0.42	1.01	1.83	0.01	9.90	1.01	673.09	0.02	0.05

[1] PM2.5 Emission Factors assumed to be 97% of PM10.

[2] VOC emission factors are 1.053 times the HC emission factors

[3] SO₂ = Brake Specific Fuel Consumption (BSFC) from Table 8.4 * fuel sulfur level (15×10-6 for locomotives using ULSD) * 0.97753 * 2

[4] HAPs assumed same as VOC.

[5] CO₂ = Brake Specific Fuel Consumption (BSFC) from Table 8.4 * 3.19 for diesel fuel.

[6] N₂O = Brake Specific Fuel Consumption (BSFC) from Table 8.4 * 0.00008 for diesel fuel.

[7] CH₄ = Brake Specific Fuel Consumption (BSFC) from Table 8.4 * 0.00025 for diesel fuel.

[8] Line-Haul emission factors for PM10, VOC, CO, and NOX are from Table 8.2. Tier I engine level was assumed.

[9] Switcher emission factors for PM10, VOC, CO, and NOX are from Table 8.3 for Tier I engines.

Total Rail Emissions

Locomotive Type	Emissions (tpy) ^[1]										
	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[2]
Line-haul (Class I)	1.11	1.08	1.63	4.44	0.02	23.25	1.63	1,705.08	0.04	0.13	1,720.16
Switcher	0.06	0.06	0.14	0.25	8.38E-04	1.34	0.14	91.11	2.28E-03	0.01	91.92
Total	1.17	1.13	1.77	4.69	0.02	24.59	1.77	1,796.19	0.05	0.14	1,812.07

[1] Emissions (tpy) = Activity (HP-hr) x EF (g/HP-hr) / 907,184.74 (ton/g)

[2] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.

Table C-18
Louisiana International Terminal
Emergency Generator Combustion Emissions

Operational Year: 2028							Hours ^[1]	Emission Factors (lb/MMBtu) ^[5]								Tons per year (tpy) ^[6]												
Actual Description	Fuel	Engine Rating (kW) ^[1]	Fuel Consumption ^[2] (Btu/kW-hr)	Rated Output ^[3] (MMBtu/hr)	Volume of Fuel Combusted ^[4] (scf/yr)	HHV ^[5] (Btu/scf)		PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O ^[5]	CH ₄	PM ₁₀	PM _{2.5}	VOC	CO	SO ₂	NO _x	HAPs	CO ₂	N ₂ O	CH ₄	CO ₂ e ^[7]
Marine Vessels																												
Emergency Generator	Natural Gas	1,660	9,140.0	15.2	4,436,374.3	1.02E-03	300	7.71E-05	7.71E-05	0.12	0.32	5.88E-04	4.08	0.07	116.98	2.20E-04	2.20E-03	1.74E-04	1.74E-04	0.27	0.72	1.33E-03	9.23	0.16	264.67	4.99E-04	4.99E-03	264.94
Total:																		1.74E-04	1.74E-04	0.27	0.72	1.33E-03	9.23	0.16	264.67	4.99E-04	4.99E-03	264.94

Notes:

[1] Engine rating and hours estimated by the Applicant.

[2] Fuel consumption is assumed based on typical natural gas fuel consumption for 1,660 kW natural gas engine.

[3] Rated Output (Btu/hr) = Fuel Consumption (btu/kW-hr) * Operating hours (hr/yr) * Engine rating (kW) / 10*6 (btu/mmbtu)

[4] Scf/yr = MMBtu/hr / 0.00102 MMBtu/scf x hr/yr

[5] HHV and criteria pollutant and HAPs emission factors are from AP-42 Chapter 3 Table 3.2-2 for uncontrolled 4-stroke lean-burn engines. CO₂, N₂O, and CH₄ emission Factors for Natural Gas from 40 CFR 98, Subpart C, Table C-1 and C-2; converted from kg/MMBtu to lb/MMBtu by multiplying by 2.2046. Maximum emission factors meeting this criteria have been converted from g/kWh to g/hp-hr by multiplying by 0.7457. HAP emissions were conservatively assumed to be equal to VOC emissions.

[6] Annual Emissions (tons/yr) = Natural Gas Emission Factor (lb/MMBtu) * Fuel Combusted (scf/yr) * HHV (MMBtu/scf) / Conversion (lb/ton)

[7] CO₂e was calculated by summing the emissions for CO₂, N₂O, and CH₄. N₂O and CH₄ were both multiplied by their relative global warming potential factor first. N₂O has a global warming potential factor equivalent to 265 times that of CO₂, while CH₄ has a global warming potential equivalent to 28 times CO₂ per 40 CFR Appendix Table A-1 to Subpart A of Part 98 - Global Warming Potentials.