United States Navy

P508 Mole Pier Floating Dry Dock
Annual Emissions Summary
November 2023

Emissions Summary

Emission Process	Annual Emissions (tons/year)						Annual Emissions (metric tons/year)		
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Maritime Transit (Mobile, Alabama to San Diego, California)	59.3	1,525.1	141.6	1,119.9	150.9	120.6	58,974.3	1.1	2.9
Maritime Transit (Greater than 12nm of San Diego, California)	59.0	1,517.8	141.1	1,115.7	150.3	120.2	58,753.9	1.1	2.9
Maritime Transit (Between 0nm and 12nm of San Diego, California)	0.2	7.3	0.6	4.2	0.6	0.5	220.4	0.0	0.0
Maritime Transit (Between 0nm and 3nm of San Diego, California)	0.1	4.4	0.3	2.6	0.3	0.3	134.9	0.0	0.0
Worker Commute	0.0	0.0	0.3	0.0	0.0	0.0	83.6	0.0	0.0
Welding	--	--	--	--	0.6	0.6	--	--	--
Blasting Operations	--	--	--	--	9.7	9.7	--	--	--
Solvent Operations	0.1	--	--	--	--	--	--	--	--
Marine Coating Application Operations	5.1	--	--	--	3.1	3.1	--	--	--
Adhesive Application Operations	0.0	--	--	--	--	--	--	--	--
PERP Equipment	0.4	3.9	0.8	0.0	0.3	0.3	129.6	0.0	0.0
Stationary Diesel Emergency Generator	0.0	0.0	0.2	0.0	0.0	0.0	26.1	0.0	0.0

Note: Values shown as "0.0" represent non-zero values less than 0.1 tons per year

General Conformity Threshold Comparision

Emission Process	Annual Emissions (tons/year)								
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Project Emissions within 3nm of San Diego, California [a, b]	**5.8**	**8.4**	**1.7**	**2.6**	**14.0**	**13.9**	**374.2**	**0.0**	**0.0**
Project Emissions within 3nm of San Diego, California [c, b]	**0.3**	**4.5**	**0.7**	**2.6**	**10.1**	**10.0**	**218.5**	**0.0**	**0.0**
General Conformity Threshold	**25**	**25**	**100**	**100**	**100**	**100**	**--**	**--**	**--**
Exceeds General Conformity Threshold	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[a] General Conformity thresholds are compared to the scope of emissions within 3nm of San Diego, California. These emissions conservatively include the emissions from evaluated sources that would be permitted with the San Diego Air Pollution Control District.

[b] Subtotals may not add up due to rounding

[c] General Conformity thresholds are compared to the scope of emissions within 3nm of San Diego, California. These emissions exclude the emissions from evaluated sources that would be permitted with the San Diego Air Pollution

Additional Emissions Summary for Purposes of NEPA

Emission Process [a]	Annual Emissions (tons/year)								
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Project Total Including Maritime Transit from Mobile, Alabama to 0nm from San Diego, California	**65**	**1,536**	**144**	**1,124**	**165**	**135**	**59,434**	**1**	**3**
Project Emissions within 12nm of San Diego, California	**6**	**11**	**2**	**4**	**14**	**14**	**460**	**0.01**	**0.02**

[a] Subtotals may not add up due to rounding

nm = nautical mile
VOC = volatile organic ocompound(s)
NOx = oxides of nitrogen
CO = carbon monoxide
SO_2 = sulfur dioxide
PM_{10} = Particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide

United States Navy

P508 Mole Pier Floating Dry Dock
Maritime Vessel Emission Calculations
November 2023

Heavy Lift Vessel Operations Data

Trip Portion	Trip Length One Way (nm) [a]	Average Speed (knots) [b]	Hotel/Idle Period Per One Way (hours)	Loading/Unloading Operations (hours) [c]
Mobile AL to 0nm within San Diego, CA	14,700	10	8	10
Within 12 NM of San Diego (including operations within 3 NM)	12	10	8	10
Within 3 NM of San Diego [d]	3	5	8	10

[a] One way trip length from Mobile, Alabama to San Diego is 14,000 nauitcal miles with no stops. An additional 5% has been added to this trip length to account for fuel/supply stops.
[b] Data developed by estimates provided by U.S. Navy for a similar vessel
[c] Loading and unloading operations assume 6 hours for unloading and 4 hours for ballasting.
[d] The heavy lift vessel is assumed to move at a slower speed than routine transit within 3nm of San Diego of 5 knots.
nm = nautical mile

Heavy Lift Vessel Propulsion Engine Data

Propulsion Engine Power (MW) [a]	Propulsion Engine Power (horsepower)	Transit Propulsion Engine Load Factor	Transit Propulsion Engine Low Load Adjustment Factor	Hotel/Idle Propulsion Engine Load Factor [b]	Hotel/Idle Propulsion Engine Low Load Adjustment Factor [b]
26.1	35,001	1	N/A	0.2	1.0

[a] Data developed by estimates provided by U.S. Navy for a similar vessel
[b] Load emission factors are based upon 20% engine load, which applies to all pollutants as per EPA *Ports Emissions Inventory Guidance* and calculation methodology for ocean going vessels of *Installed Power(kW)*Load Factor(%)*Activity(h)*Emission Factor(g/kW-hr)*Low-Load Ajustment Factor* .
MW= megawatt(s)
gal/hr = gallon(s) per hour

Heavy Lift Vessel Auxiliary Engine Data

Auxiliary Engine Power (MW) [a]	Auxiliary Engine Power (horsepower) [a]	Transit Auxiliary Engine Load Factor	Transit Auxiliary Engine Activity	Transit Auxilary Engine Low Load Adjustment Factor	Hotel/Idle Auxiliary Engine Load Factor	Hotel/Idle Auxilary Engine Low Load Adjustment Factor
6	8,046	1	1	N/A	1	N/A

[a] Auxiliary engine power based upon 4 CAT3512C ATAAC, each rated at 1,500 kW.
MW= megawatt(s)

10,000 Horsepower Tug Vessel Data

Trip Portion	Count [a]	Propulsion Engine Size (hp) [a]	Auxiliary Engine Size (hp) [b]	Hours of Operation Per Day	Days of Operation for Project	Propulsion Engine Load Adjustment Factor [c]	Auxiliary Engine Load Adjustment Factor [c]	Propulsion Engine Load Activity Factor [d]	Auxiliary Engine Load Activity Factor [d]	Propulsion Engine Low Load Adjustment Factor [e]	Auxiliary Engine Low Load Adjustment Factor [e]
Mobile AL to 0nm within San Diego, CA	1	10,000	306	8	2	0.50	0.43	1.0	1.0	N/A	N/A
Within 12 NM of San Diego (including operations within 3 NM)	1	10,000	306	8	2	0.50	0.43	1.0	1.0	N/A	N/A
Within 3 NM of San Diego d	1	10,000	306	8	2	0.50	0.43	1.0	1.0	N/A	N/A

[a] Data developed by estimates provided by U.S. Navy for a similar vessel
[b] Data obtained from Port of Long Beach 2021 Air Emission Inventory Table 3.4 for ATB Tug average auxiliary engine.
[c] Load factor obtained from EPA *Ports Emissions Inventory Guidance* Table 4.4.
[d] Activity factor assumed to be 1.0 in lack of site specific data.
[e] Low load adjustment factors not applicable as the propulsion engine will be greater than 20% load and the adjustment factor is not applicable to auxiliary engines
hp = horsepower

6,000 Horsepower Tug Vessel Data

Trip Portion	Count [a]	Propulsion Engine Size (hp) [a]	Auxiliary Engine Size (hp) [b]	Hours of Operation Per Day	Days of Operation for Project	Propulsion Engine Load Adjustment Factor [c]	Auxiliary Engine Load Adjustment Factor [c]	Propulsion Engine Load Activity Factor [d]	Auxiliary Engine Load Activity Factor [d]	Propulsion Engine Low Load Adjustment Factor [e]	Auxiliary Engine Low Load Adjustment Factor [e]
Mobile AL to San Diego, CA	4	6,000	306	8	2	0.50	0.43	1.0	1.0	N/A	N/A
Within 12 NM of San Diego (including operations within 3 NM)	4	6,000	306	8	2	0.50	0.43	1.0	1.0	N/A	N/A
Within 3 NM of San Diego	4	6,000	306	8	2	0.50	0.43	1.0	1.0	N/A	N/A

[a] Data developed by estimates provided by U.S. Navy for a similar vessel
[b] Data obtained from Port of Long Beach 2021 Air Emission Inventory Table 3.4 for ATB Tug average auxiliary engine.
[c] Load factor obtained from EPA *Ports Emissions Inventory Guidance* Table 4.4.
[d] Activity factor assumed to be 1.0 in lack of site specific data.
[e] Low load adjustment factors not applicable as the propulsion engine will be greater than 20% load and the adjustment factor is not applicable to auxiliary engines
hp = horsepower

Maritime Vessel Emission Factors

Vessel and Engine Type	VOC	Nox	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Heavy Lift Vessel									
Main Engine (g/kW-hr) [a]	0.6	14.4	1.4	10.293	1.404	1.123	607	0.012	0.031
Auxiliary Engine (g/kW-hr) [b]	0.4	14.7	1.1	11.98	1.54	1.23	707	0.008	0.031
10,000 Horsepower Tug									
Main Engine (g/kW-hr) [c]	0.6	18.1	1.4	10.293	1.404	1.123	607	0.012	0.031
Auxiliary Engine (g/kW-hr) [b]	0.4	14.7	1.1	11.98	1.54	1.23	707	0.008	0.031
6,000 Horsepower Tug									
Main Engine (g/kW-hr) [c]	0.6	18.1	1.4	10.293	1.404	1.123	607	0.012	0.031
Auxiliary Engine (g/kW-hr) [b]	0.4	14.7	1.1	11.98	1.54	1.23	707	0.008	0.031

[a] Data obtained from EPA *Ports Emissions Inventory Guidance* (NOx from Table 3.5 for Tier II SDD, VOC and CO from Table 3.8 for SSD), San Pedro Bay Ports Inventory Tables 2.3 and 2.4 (SO_2, PM_{10}, $PM_{2.5}$, CO_2, N_2O, and CH_4).
[b] Data obtained from San Pedro Bay Ports Inventory Methodology Table 2.9 and 2.10 for 2.7% sulfur HFO Tier 0 medium speed auxiliary engines
[c] Data obtained from San Pedro Bay Ports Inventory Methodology Tables 2.3 and 2.4 for 2.7% sulfur HFO Tier 0 slow speed propulsion engines
lbs/gal = pound(s) per gallon
VOC = volatile organic ocompound(s)
NOx = oxides of nitrogen
CO = carbon monoxide
SO_2 = sulfur dioxide
PM_{10} = Particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide

Data Conversion

pounds per gallon of heavy fuel oil	8.42
grams per pound	453.6
pounds per kilogram	2.2
gallons per tonne of heavy fuel oil	261.8

United States Navy
P508 Mole Pier Floating Dry Dock
Maritime Vessel Emission Calculations
November 2023

Maritime Vessel Emissions(tons/year)

Vessel and Engine Type	VOC	Nox	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
From Mobile, Alabama to San Diego, California Round Trip									
Heavy Lift Vessel									
Main Engine	5.09E+01	1.22E+03	1.19E+02	8.73E+02	1.19E+02	9.52E+01	5.15E+04	1.02E+00	2.63E+00
Auxiliary Engine	7.87E+00	2.89E+02	2.17E+01	2.36E+02	3.03E+01	2.42E+01	1.39E+04	1.57E-01	6.10E-01
10,000 Horsepower Tug									
Main Engine	7.89E-02	2.38E+00	1.84E-01	1.35E+00	1.85E-01	1.48E-01	7.98E+01	1.58E-03	4.08E-03
Auxiliary Engine	1.38E-03	5.09E-02	3.81E-03	4.15E-02	5.33E-03	4.26E-03	2.45E+00	2.77E-05	1.07E-04
6,000 Horsepower Tug									
Main Engine	4.73E-02	1.43E+00	1.10E-01	8.12E-01	1.11E-01	8.86E-02	4.79E+01	9.47E-04	2.45E-03
Auxiliary Engine	1.38E-03	5.09E-02	3.81E-03	4.15E-02	5.33E-03	4.26E-03	2.45E+00	2.77E-05	1.07E-04
Between 0 nm and 12 nm of San Diego, California									
Heavy Lift Vessel									
Main Engine	1.66E-01	3.98E+00	3.87E-01	2.84E+00	3.88E-01	3.10E-01	1.68E+02	3.31E-03	8.56E-03
Auxiliary Engine	1.02E-01	3.73E+00	2.79E-01	3.04E+00	3.91E-01	3.12E-01	1.80E+02	2.03E-03	7.87E-03
10,000 Horsepower Tug									
Main Engine	7.89E-02	2.38E+00	1.84E-01	1.35E+00	1.85E-01	1.48E-01	7.98E+01	1.58E-03	4.08E-03
Auxiliary Engine	1.38E-03	5.09E-02	3.81E-03	4.15E-02	5.33E-03	4.26E-03	2.45E+00	2.77E-05	1.07E-04
6,000 Horsepower Tug									
Main Engine	4.73E-02	1.43E+00	1.10E-01	8.12E-01	1.11E-01	8.86E-02	4.79E+01	9.47E-04	2.45E-03
Auxiliary Engine	1.38E-03	5.09E-02	3.81E-03	4.15E-02	5.33E-03	4.26E-03	2.45E+00	2.77E-05	1.07E-04
Between 0 nm and 3 nm of San Diego, California									
Heavy Lift Vessel									
Main Engine	1.45E-01	3.48E+00	3.38E-01	2.49E+00	3.39E-01	2.71E-01	1.47E+02	2.90E-03	7.49E-03
Auxiliary Engine	9.84E-02	3.62E+00	2.71E-01	2.95E+00	3.79E-01	3.03E-01	1.74E+02	1.97E-03	7.63E-03
10,000 Horsepower Tug									
Main Engine	7.89E-02	2.38E+00	1.84E-01	1.35E+00	1.85E-01	1.48E-01	7.98E+01	1.58E-03	4.08E-03
Auxiliary Engine	1.38E-03	5.09E-02	3.81E-03	4.15E-02	5.33E-03	4.26E-03	2.45E+00	2.77E-05	1.07E-04
6,000 Horsepower Tug									
Main Engine	4.73E-02	1.43E+00	1.10E-01	8.12E-01	1.11E-01	8.86E-02	4.79E+01	9.47E-04	2.45E-03
Auxiliary Engine	1.38E-03	5.09E-02	3.81E-03	4.15E-02	5.33E-03	4.26E-03	2.45E+00	2.77E-05	1.07E-04
Subtotal Maritime Emissions From Mobile Alabama to Shoreline San Diego, California	**59**	**1,525**	**142**	**1,120**	**151**	**121**	**66,051**	**1.2**	**3.3**
Subtotal Maritime Emissions between 0 nm and 12 nm of San Diego, California	**0.24**	**7.3**	**0.56**	**4.2**	**0.57**	**0.46**	**247**	**0.00**	**0.01**
Subtotal Maritime Emissions between 0 nm and 3 nm of San Diego, California	**0.15**	**4.4**	**0.34**	**2.6**	**0.35**	**0.28**	**151**	**0.00**	**0.01**

United States Navy
Worker Onroad Emission Calculations
Annual Emissions Summary
November 2023

Worker Commute Data

Trip Type	One Way Trip Length (miles) [a]	Number of New Employees	Work Days Per Week	Work Weeks Per Year	Vehicle Type
Local San Diego Worker	11.8	41	5	52	50% gasoline light duty cars, 50% light duty trucks (type 1 and 2)

[a] Trip length based upon CalEEMOD Version 2022.1.1 Default Data for San Diego Air Pollution Control District residential trip legth for home to work.

Worker Commute Emission Factors [a]

Trip Type	Emission Factors (lbs/VMT)								
	VOC	Nox	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Local San Diego Worker	7.21E-05	1.94E-04	2.45E-03	7.36E-06	4.02E-05	1.48E-05	7.45E-01	1.17E-05	1.61E-05

[a] Equipment emission factors were obtained from EFMAC 2021 for San Diego Air Pollution Control District defaults and aggregated speed and vehicle age. Emission factors assume 50% LDA, 25 LDT1, and 25% LDT2 vehicel types.

lbs/VMT = pound(s) per vehicle mile traveled

VOC = volatile organic ocompound(s)

NOx = oxides of nitrogen

CO = carbon monoxide

SO_2 = sulfur dioxide

PM_{10} = Particulate matter less than 10 micrometers in diameter

$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter

CO_2 = carbon dioxide

CH_4 = methane

N_2O = nitrous oxide

Worker Commute Emissions

Trip Type	Annual Emissions (tons/year)								
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Local San Diego Worker	9.07E-03	2.45E-02	3.08E-01	9.26E-04	5.06E-03	1.87E-03	9.37E+01	1.47E-03	2.02E-03
Total Emissions	**9.07E-03**	**2.45E-02**	**3.08E-01**	**9.26E-04**	**5.06E-03**	**1.87E-03**	**9.37E+01**	**1.47E-03**	**2.02E-03**

tons/year = ton(s) per year

grams per pound 453.6

United States Navy

P508 Mole Pier Floating Dry Dock
Welding Emission Calculations
November 2023

Welding Rod Usage

Welding Type	Annual Welding Rod Usage (lbs) [a]	Notes
BRAZING	20	--
FCAW	1,990	Assumed as unshielded 71T Welding based upon histroical data of similar drydock operations
GMAW	10	Assumed as 5356 welding based upon histroical data of similar drydock operations indicating most GMAW welding is 5356
GTAW	1,010	Assumed as N67 welding based upon histroical data of similar drydock operations indicating most GTAW welding is N67
SMAW	460	Assumed as 7018 welding based upon histroical data of similar drydock operations indicating most GTAW welding is 7018

[a] Annual usage of welding rod estimated based upon similar U.S. Navy operated drydock operations.
FCAW = Flux-cored arc welding
GMAW = Gas metal arc welding
GTAW = Gas tungsten arc welding
SMAW = Shielded metal arc welding
lbs = pound(s)

Welding Emission Factors

Welding Type	PM_{10} (lbs/lbs of welding rod)	$PM_{2.5}$ (lbs/lbs of welding rod) [a]	Source
BRAZING	Negligable	Negligable	Emissions assumed as negligable based upon EPA AP42 Section 12.19 Electric Arc Welding
FCAW	0.551	0.551	SDAPCD default emission factor F101 - 71T Self-Shielded, Flux Core Arc Welding (FCAW) Welding Process Emission Factors (July 2022)
GMAW	0.01	0.01	SDAPCD default emission factor G113 - 5356, Gas Metal Arc Welding (GMAW) Welding Process Emission Factors (July 2022)
GTAW	0.01	0.01	SDAPCD default emission factor G124 - N67, Gas Metal Arc Welding (GMAW) Welding Process Emission Factors (July 2022)
SMAW	0.0184	0.0184	SDAPCD default emission factor S120 - 7018, Shielded Metal Arc Welding (SMAW) Welding Process Emission Factors (July 2022)

[a] $PM_{2.5}$ emissions assumed equal to PM_{10} emissions.
lb/lbs = pound(s) per pound of welding rod
PM_{10} = Particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter

Welding Emissions

Welding Type	PM_{10} Emissions (tons/year)	$PM_{2.5}$ Emissions (tons/year)
BRAZING	Negligable	Negligable
FCAW	5.48E-01	5.48E-01
GMAW	5.00E-05	5.00E-05
GTAW	5.05E-03	5.05E-03
SMAW	4.23E-03	4.23E-03
Total Emissions	**5.58E-01**	**5.58E-01**

tons/year = ton(s) per year

United States Navy

P508 Mole Pier Floating Dry Dock
Welding Emission Calculations
November 2023

Blasting Material Usage

Blasting Material	Annual Usage (Tons) [a]	Vacuum Device and Baghouse Control
Copper Slag (Shrouded)	2680	Yes
Copper Slag (Not Shrouded)	1280	Yes
Steel Shot (Shrouded)	120	Yes
Steel Shot (Not Shrouded)	240	Yes

[a] Annual usage of blasting materials estimated based upon similar U.S. Navy operated drydock operations.

Blasting Emission Factors

Blasting Material	PM_{10} (lbs/ton blast material)	$PM_{2.5}$ (lbs/ton blast material)	Source
Copper Slag (Shrouded)	1.5	1.5	SDAPCD default emission factor A02 - Abrasive Blasting, Copper Slag, assumed control efficiency of 85% from shrouding with a baghouse.
Copper Slag (Not Shrouded)	10	10	SDAPCD default emission factor A02 - Abrasive Blasting, Copper Slag, Uncontrolled.
Steel Shot (Shrouded)	1.5	1.5	SDAPCD default emission factor A08 - Abrasive Blasting, Steel Shot, assumed control efficiency of 85% from shrouding with a baghouse.
Steel Shot (Not Shrouded)	10	10	SDAPCD default emission factor A08 - Abrasive Blasting, Steel Shot, Uncontrolled.

Shoruded capture and control efficiency of 85% obtained from South Coast Air Quality Management District *Guidelines for Reporting Abrasive Blasting Operations Emissions* (December 2014) for indoor blasting.

PM_{10} = Particulate matter less than 10 micrometers in diameter

$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter

lbs/ton = pound(s) per ton of blast material

Blasting Emissions

Blasting Material	PM_{10} Emissions (tons/year)	$PM_{2.5}$ Emissions (tons/year)
Copper Slag (Shrouded)	2.01	2.01
Copper Slag (Not Shrouded)	6.40	6.40
Steel Shot (Shrouded)	0.09	0.09
Steel Shot (Not Shrouded)	1.20	1.20
Total Emissions	**9.70**	**9.70**

tons/year = ton(s) per year

United States Navy

Solvent Usage Emission Calculations
Annual Emissions Summary
November 2023

Solvent Usage

Solvent Type	Annual Usage (Gallons) [a]	Annual Usage (liters)	Average Solvent VOC Content (grams/liter)
Miscellaneous Solvents [b]	40	151	734

[a] Annual usage of solvents estimated based upon similar U.S. Navy operated drydock operations.

[b] Specific solvent products for the Proposed Project are unknown therefore they are characterized as miscenllaneous solvents with physical data based upon average solvent usage at similar U.S. Navy operated drydock operations

grams/liter = gram(s) per liter

VOC = volatile organic ocompound(s)

Liters per Gallon 3.785

Solvent Emissions

Solvent Type	Annual VOC Emissions (tons/year) [a]
Miscellaneous Solvents	0.12
Total Emissions	**0.12**

[a] Emissions assume 100% volatilization of VOC content to atmosphere

tons/year = ton(s) per year

grams per pound 453.6

United States Navy

Marine Coating Usage Emission Calculations
Annual Emissions Summary
November 2023

Marine Coating Usage

Coating Type	Annual Usage (Gallons) [a]	Average Coating VOC Content (grams/liter)	Average Coating Density (lbs/gallon)	Average Coating Solids Content (Weight Fraction)	Transfer Efficiency [c]	Fallout Fraction [c]	Capture Efficiency	Particulate Control
Miscellaneous Airless Coatings - Inside Tank [b]	290	75	11.7	0.715	70%	50%	0%	0%
Miscellaneous Airless Coatings - Inside Ship [b]	40	191	13.6	0.715	70%	50%	0%	0%
Miscellaneous Airless Coatings - Shrouded Tank [b]	4,180	264	12.9	0.715	70%	50%	0%	0%
Miscellaneous Brush/Roller Coatings [b]	620	149	12.0	N/A	100%	N/A	N/A	N/A

[a] Annual usage of marine coatings estimated based upon similar U.S. Navy operated drydock operations.

[b] Specific marine coating products for the Proposed Project are unknown therefore they are characterized as miscenllaneous coatings with physical data based upon average coatingusage at similar U.S. Navy operated drydock operations

[c] Transfer efficiency and fallout fraction obtained from SDAPCD Painting and Surface Coating Operations Emission Inventory Guidance for airless application on large surfaces. No vacuum or additional emission controls are assumed.

grams/liter = gram(s) per liter

VOC = volatile organic ocompound(s)

lbs/gallon = pound(s) per gallon

N/A = Not applicable

Liters per Gallon 3.785

Marine Coating Emissions

Coating Type	Annual VOC Emissions (tons/year) [a]	PM_{10} Emissions (tons/year)	$PM_{2.5}$ Emissions (tons/year)
Miscellaneous Airless Coatings - Inside Tank	0.09	0.18	0.18
Miscellaneous Airless Coatings - Inside Ship	0.03	0.03	0.03
Miscellaneous Airless Coatings - Shrouded Tank	4.61	2.90	2.90
Miscellaneous Brush/Roller Coatings	0.38	0.00	0.00
Total Emissions	**5.12**	**3.11**	**3.11**

[a] Emissions assume 100% volatilization of VOC content to atmosphere

PM_{10} = Particulate matter less than 10 micrometers in diameter

$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter

tons/year = ton(s) per year

grams per pound 453.6

United States Navy

Adhesive Usage Emission Calculations

Annual Emissions Summary

November 2023

Solvent Usage

Adhesive Type	Annual Usage (Gallons) [a]	Annual Usage (liters)	Average Adhesive VOC Content (grams/liter)
Miscellaneous Adhesives [b]	20	76	379

[a] Annual usage of ahesives estimated based upon similar U.S. Navy operated drydock operations.

[b] Specific adhesive products for the Proposed Project are unknown therefore they are characterized as miscenllaneous adhesives with physical data based upon average adhesive usage at similar U.S. Navy operated drydock operations

grams/liter = gram(s) per liter

VOC = volatile organic ocompound(s)

Liters per Gallon 3.785

Adhesive Emissions

Adhesive Type	Annual VOC Emissions (tons/year) [a]
Miscellaneous Adhesives	0.03
Total Emissions	**0.03**

[a] Emissions assume 100% volatilization of VOC content to atmosphere

tons/year = ton(s) per year

grams per pound 453.6

United States Navy

PERP Usage Emission Calculations
Annual Emissions Summary
November 2023

PERP Usage

PERP Type	PERP Size (Horsepower)	Annual Hours of Operation [a]	Annual Diesel Usage (Gallons) [a]
Miscellaneous Diesel Engines [b]	290	1,490	12,900

[a] Annual usage of PERP equipment estimated based upon similar U.S. Navy operated drydock operations.
[b] Specific PERP equipment for the Proposed Project are unknown therefore they are characterized as miscenllaneous engines with physical data based upon average PERP equipment at similar U.S. Navy operated drydock operations. The Project is planning to use electric equipment as the primary equipment source where avaialble. As a result, the usages used for purposes of this analysis are conservative and would likely be greater than expected operations at the Project.

PERP Emission Data and Factors [a]

PERP Type	Emission Factors (lbs/1,000 gal)								
	VOC [a]	NOx [a]	CO [a]	SO_2 [a]	PM_{10} [a]	$PM_{2.5}$ [a]	CO_2 [b]	CH_4 [b]	N_2O [b]
Miscellaneous Diesel Engines	58.92	604.3	130.18	0.21	42.48	42.48	22,509	0.90	1.32

[a] Equipment emission factors and load factor were obtained from SDAPCD *E15 - Portable Engine, Diesel Fired, 50-600 BHP, Uncontrolled Calculation Methods*

[b] Equipment emission factors and load factor were obtained from *EPA Emission Factors Hub* (April 2023) Tables 2 and 5 for nonroad mobile source bomustion (commercial and industrial equipment)

lbs/1,000 gal = pound(s) per 1,000 gallons of fuel burned

g/hp-hr = gram(s) per horsepower-hour

VOC = volatile organic ocompound(s)

NOx = oxides of nitrogen

CO = carbon monoxide

SO_2 = sulfur dioxide

PM_{10} = Particulate matter less than 10 micrometers in diameter

$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter

CO_2 = carbon dioxide

CH_4 = methane

N_2O = nitrous oxide

PERP Emissions

PERP Type	Annual Emissions (tons/year)								
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Miscellaneous Diesel Engines	0.38	3.90	0.84	0.00	0.27	0.27	145.18	0.01	0.01
Total Emissions	**0.38**	**3.90**	**0.84**	**0.00**	**0.27**	**0.27**	**145.18**	**0.01**	**0.01**

tons/year = ton(s) per year

grams per pound 453.6

United States Navy

Emergency Generator Emission Calculations
Annual Emissions Summary
November 2023

Diesel Emergency Generator Usage

Generator Size (kW) [a]	Count [a]	Engine Size (Horsepower) [b]	Engine Heat Input (MMBtu/hr) [c]	Annual Hours of Operation for Maintenance and Testing
940	1	1,047	7.17	50

[a] Generator size and counts for the Proposed Project are based upon aequipment at similar U.S. Navy operated drydock operations

[b] Generator engine size based upon diesel-fired engines with conversion of mechanical power to electrical output of: 85%

[c] Engine heat input rating calculated based upon fuel consumption of 0.35 lbs/bhp-hr and diesel heat content.

kW = kilowatt

MMBtu/hr = million british thermal units per hour

Density of Diesel Fuel (lbs/gal) 7.05

Heat Content of Diesel (MMBtu/gal) 0.138

Diesel Emergency Generator Emission Factors

Generator Size (kW)	Emission Factors (grams/bhp-hr)						Emission Factors (lbs/MMBtu)		
	VOC [a]	NOx [a]	CO [a]	SO_2 [b]	PM_{10} [a]	$PM_{2.5}$ [a]	CO_2 [c]	CH_4 [c]	N_2O [c]
940	1.75E-01	3.75E-01	3.25E+00	1.05E-05	1.88E-02	1.88E-02	1.63E+02	6.61E-06	1.32E-06

[a] Emission factors represent Tier 4 certified emission rates with a 25% safety factor applied to account for site variability.

[b] SO_2 emission factor based upon a mass balance of sulfur in the fuel of 15 ppmw and all sulfur emitted as SO_2.

[c] Emission factors from 40 CFR 98 Subpart C, Tables C-1 and C-2

grams/bhp-hr = grams per brake horsepower-hour

lbs/MMBtu = pound(s) per million british thermal units of heat input

VOC = volatile organic ocompound(s)

NOx = oxides of nitrogen

CO = carbon monoxide

SO_2 = sulfur dioxide

PM_{10} = Particulate matter less than 10 micrometers in diameter

$PM_{2.5}$ = Particulate matter less than 2.5 micrometers in diameter

CO_2 = carbon dioxide

CH_4 = methane

N_2O = nitrous oxide

Diesel Emergency Generator Emission Factors

Generator Size (kW)	Emission Factors (tons/year)								
	VOC	Nox	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
940	1.01E-02	2.16E-02	1.88E-01	6.06E-07	1.08E-03	1.08E-03	2.92E+01	1.19E-06	2.37E-07
Total Emissions	**1.01E-02**	**2.16E-02**	**1.88E-01**	**6.06E-07**	**1.08E-03**	**1.08E-03**	**2.92E+01**	**1.19E-06**	**2.37E-07**

tons/year = ton(s) per year

Mole Pier Dredge and Disposal

Nearshore Replenishment Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year	
Main genset	2000	1500	10	90	Assume 10 hours per day at 1,000 cy per day over 90 working days to dredge 86,121 cy.
Aux genset	2000	550	10	90	
Spud winch	2000	250	10	90	
Tugboat with Barge (Replenishment Site 1) (Two units operating at opposite ends of route) (1)	NA	800	6	90	
Tugboat with Barge (Replenishment Site 2) (Two units operating at opposite ends of route) (2)	NA	800	6	90	
Tugboat with Barge (Replenishment Site 3) (Two units operating at opposite ends of route) (3)	NA	800	6	90	

Equipment	Load Factor	Emission Factors (g/HP-hr)						
		CO (4)	NOx (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3
Tugboat with Barge (Replenishment Site 1)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2
Tugboat with Barge (Replenishment Site 2)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2
Tugboat with Barge (Replenishment Site 3)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2

Equipment		Emissions (lbs/yr)						
		CO (4)	NOx (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)
Main Genset		2778	9487	279	279	9	804	862604
Aux Genset		1203	3876	132	132	2	371	458928
Spud Winch		352	1323	44	44	2	121	143767
Tugboat with Barge (Replenishment Site 1)		1619	1752	103	103	1	190	100229
Tugboat with Barge (Replenishment Site 2)		1619	1752	103	103	1	190	100229
Tugboat with Barge (Replenishment Site 3)		1619	1752	103	103	1	190	100229

Replenishment Site 1 Total (lbs/yr)	5952	16438	558	558	14	1488	**1565528**
Replenishment Site 2 Total (lbs/yr)	5952	16438	558	558	14	1488	**1565528**
Replenishment Site 3 Total (lbs/yr)	5952	16438	558	558	14	1488	**1565528**

Replenishment Site 1 Total (tons/yr)	**2.98**	**8.22**	**0.28**	**0.28**	**0.01**	**0.74**	Silver Strand
Replenishment Site 2 Total (tons/yr)	**2.98**	**8.22**	**0.28**	**0.28**	**0.01**	**0.74**	North Island
Replenishment Site 3 Total (tons/yr)	**2.98**	**8.22**	**0.28**	**0.28**	**0.01**	**0.74**	

Green House Gas Potential*	1	
Repenishment Site 1 Total CO_2e (metric tons/yr)	710.12	**710.12**
Replenishment Site 2 Total CO_2e (metric tons/yr)	710.12	**710.12**
Replenishment Site 3 Total CO_2e (metric tons/yr)	710.12	**710.12**

NOTES:

(1) Assumed 3 hours for roundtrip barge trip
(2) Assumed 3 hours for roundtrip barge trip
(3) Assumed 3 hours for roundtrip barge trip
(4) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php
(5) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

Ocean Disposal Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year
Main genset	2000	1500	10	90
Aux genset	2000	550	10	90
Spud winch	2000	250	10	90
Tugboat with Barge (Two units operating at opposite ends of route) (1)	NA	800	6	90

Equipment	Load Factor	Emission Factors (g/HP-hr)						
		CO (2)	NOx (2)	PM_{10} (2)	$PM_{2.5}$ (2)	SO_2 (3)	VOC (2)	CO_2 (3)
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3
Tugboat with Barge	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2

Equipment		Emissions (lbs/yr)						
		CO (2)	NOx (2)	PM_{10} (2)	$PM_{2.5}$ (2)	SO_2 (3)	VOC (2)	CO_2 (3)
Main Genset		2778	9487	279	279	9	804	862604
Aux Genset		1203	3876	132	132	2	371	458928
Spud Winch		352	1323	44	44	2	121	143767
Tugboat with Barge		1619	1752	103	103	1	190	100229
	Total (lbs/yr)	5952	16438	558	558	14	1488	1565528
	Total (tons/yr)	**2.98**	**8.22**	**0.279**	**0.279**	**0.0070**	**0.74**	

Green House Gas Potential*	1	
Total CO_2e (metric tons/yr)	710.12	**710.12**

NOTES:
(1) Assumes 3 hours roundtrip barge trip
(2) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php
(3) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

* IPCC Second Assessment Report (1996)

Upland Disposal Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year
Main genset	2000	1500	10	90
Aux genset	2000	550	10	90
Spud winch	2000	250	10	90
Shore-Based Crane	NA	240	10	90
Loader	NA	900	10	90
Tugboat with Barge	NA	800	10	90
Dump Truck - 12 CY HP-hrs (1) (2)	NA	600	10	90

Equipment	Load Factor	Emission Factors (g/HP-hr)						
		CO (3)	NOx (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3
Shore-Based Crane	0.6	8.5	9.2	0.54	0.54	0.0055	1.0	526.2
Loader	0.5	8.5	9.2	0.54	0.54	0.0055	1.0	526.2
Tugboat with Barge	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2
Dump Truck - 12 CY	NA	8.5	9.2	0.54	0.54	0.0055	1.0	526.2

Equipment		Emissions (lbs/yr)						
		CO (3)	NOx (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)
Main Genset		2778	9487	279	279	9	804	862604
Aux Genset		1203	3876	132	132	2	371	458928
Spud Winch		352	1323	44	44	2	121	143767
Shore-Based Crane		2429	2629	154	154	2	286	150344
Loader		7589	8214	482	482	5	893	469825
Tug with Barge		3036	3286	193	193	2	0	0
Dump Truck - 12 CY		11	12	1	1	0	1	696
	Total (lbs/yr)	17397	28827	1285	1285	22	2477	2086163
	Total (tons/yr)	**8.70**	**14.41**	**0.643**	**0.643**	**0.0108**	**1.24**	

Green House Gas Potential*	1	
Total CO_2e (metric tons/yr)	946.28	**946.28**

NOTES:
(1) One-way distance from NBSD to Otay Landfill = 12.2 miles
(2) Assumed 120 roundtrip truck trips per day
(3) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php
(4) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

* IPCC Second Assessment Report (1996)

Total Emissions from Near Shore Dredge and Spud Winch Engines

Equipment		Emissions (lbs/yr)						
		CO (3)	NOx (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)
Main Genset		2778	9487	279	279	9	804	862604
Aux Genset		1203	3876	132	132	2	371	458928
Spud Winch		352	1323	44	44	2	121	143767

Equipment		Emissions (tons/yr)						
		CO (3)	NOx (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)
Main Genset		1.39	4.74	0.14	0.14	0.00	0.40	431.30
Aux Genset		0.60	1.94	0.07	0.07	0.00	0.19	229.46
Spud Winch		0.18	0.66	0.02	0.02	0.00	0.06	71.88
Total Emissions		2.17	7.34	0.23	0.23	0.01	0.65	732.65

NOTES:
The above engines are used exclusively for dredging and lifting, and as such are permitted by SDAPCD or CARB.
Propulsion engines are separate from these engines.

Total Emissions from Ocean Disposal and Upland Disposal Dredge and Spud Winch Engines

Equipment		Emissions (lbs/yr)						
		CO (3)	NOx (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)
Main Genset		2778	9487	279	279	9	804	862604
Aux Genset		1203	3876	132	132	2	371	458928
Spud Winch		352	1323	44	44	2	121	143767

Equipment		Emissions (tons/yr)						
		CO (3)	NOx (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)
Main Genset		1.39	4.74	0.14	0.14	0.00	0.40	431.30
Aux Genset		0.60	1.94	0.07	0.07	0.00	0.19	229.46
Spud Winch		0.18	0.66	0.02	0.02	0.00	0.06	71.88
Total Emissions		2.17	7.34	0.23	0.23	0.01	0.65	732.65

NOTES:
The above engines are used exclusively for dredging and lifting, and as such are permitted by SDAPCD or CARB.
Propulsion engines are separate from these engines.

Mole Pier Wharf Demolition

EQUIPMENT

Engine (1)	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year
Excavator	2000	58	8	28
Vibratory Extractor	2000	300	8	10
225-ton Crane	2000	300	8	15
Tugboat	NA	800	8	15
Loader	2000	150	2	28
Dump Truck	2000	490	12	28
Vibratory Hammer	2000	300	0	0
Forklift	2000	85	4	28
Generator Set	2000	30	4	28
Concrete/Industrial Saw	2000	85	4	28

Equipment	Load Factor	Emission Factors (lb/1000 HP-hr)						
		CO (4)	NOx (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)
Excavator	59	3.75	10.03	0.71	0.68	0.84	0.75	1192.91
Vibratory Extractor	59	6.46	13.01	0.95	0.93	0.82	0.99	1184.09
225-ton Crane	43	3.02	12.06	0.64	0.62	0.82	0.84	1175.27
Tugboat	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2
Loader	59	4.87	11.75	0.82	0.79	0.84	0.86	1177.5
Dump Truck	21	18.74	16.43	3.11	3	1.04	5.01	1499.4
Vibratory Hammer	59	6.46	13.01	0.95	0.93	0.82	0.99	1184.09
Forklift	59	6.5	9.97	0.9	0.88	0.88	0.9	1250.24
Generator Set	43	6.95	13.98	1.35	1.3	0.88	1.85	1250.24
Concrete/Industrial Saw	43	7.17	15.79	1.35	1.3	0.86	1.81	1124.42

Equipment		Emissions (lbs/yr)						
		CO (4)	NOx (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)
Excavator		29	77	5	5	6	6	9144
Vibratory Extractor		91	184	13	13	12	14	16767
225-ton Crane		47	187	10	10	13	13	18193
Tugboat		2	2	0	0	0	0	101
Loader		24	58	4	4	4	4	5836
Dump Truck		648	568	108	104	36	173	51841
Forklift		37	56	5	5	5	5	7022
Generator Set		10	20	2	2	1	3	1806
Concrete/Industrial Saw		29	65	6	5	4	7	4603

Wharf Demolition Total (lbs/yr)	917	1217	153	148	81	226	**115313**

Wharf Demolition Total (tons/yr)	**0.46**	**0.61**	**0.08**	**0.07**	**0.04**	**0.11**

Green House Gas Potential*	1	
Repenishment Site 1 Total CO_2e (metric tons/yr)	52.31	**52.31**

NOTES:

(1) Air Emissions Guide for Air Force Mobile Sources (USAF 2013)

Mole Pier Mooring Dolphin and Fender Pile Construction

EQUIPMENT

Engine (1)	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year
Excavator	2000	58	0	0
Diesel Hammer	2000	300	8	40
225-ton Crane	2000	300	8	40
Loader	2000	150	4	70
Dump Truck	2000	490	0	0
Vibratory Hammer	2000	300	8	0
Forklift	2000	85	8	70
Generator Set	2000	30	8	70
Concrete/Industrial Saw	2000	85	0	0

Equipment	Load Factor	Emission Factors (lb/1000 HP-hr)						
		CO (4)	NOx (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)
Excavator	59	3.75	10.03	0.71	0.68	0.84	0.75	1192.91
Diesel Hammer	59	6.46	13.01	0.95	0.93	0.82	0.99	1184.09
225-ton Crane	43	3.02	12.06	0.64	0.62	0.82	0.84	1175.27
Loader	59	4.87	11.75	0.82	0.79	0.84	0.86	1177.5
Dump Truck	21	18.74	16.43	3.11	3	1.04	5.01	1499.4
Vibratory Hammer	59	6.46	13.01	0.95	0.93	0.82	0.99	1184.09
Forklift	59	6.5	9.97	0.9	0.88	0.88	0.9	1250.24
Generator Set	43	6.95	13.98	1.35	1.3	0.88	1.85	1250.24
Concrete/Industrial Saw	43	7.17	15.79	1.35	1.3	0.86	1.81	1124.42

Equipment		Emissions (lbs/yr)						
		CO (4)	NOx (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)
Excavator		0	0	0	0	0	0	0
Diesel Hammer		366	737	54	53	46	56	67067
225-ton Crane		125	498	26	26	34	35	48515
Loader		121	291	20	20	21	21	29178
Dump Truck		0	0	0	0	0	0	0
		0	0	0	0	0	0	0
Forklift		183	280	25	25	25	25	35112
Generator Set		50	101	10	9	6	13	9032
Concrete/Industrial Saw		0	0	0	0	0	0	0

Replenishment Site 1 Total (lbs/yr)	844	1907	136	132	132	151	**188904**

Replenishment Site 1 Total (tons/yr)	**0.42**	**0.95**	**0.07**	**0.07**	**0.07**	**0.08**

Green House Gas Potential*	1	
Repenishment Site 1 Total CO_2e (metric tons/yr)	85.69	**85.69**

NOTES:

(1) Air Emissions Guide for Air Force Mobile Sources (USAF 2013)

Table 3-4 Proposed Demolition, Construction, and Dredge Disposal for Mole Pier FDD

Construction Year	*Emissions (tpy)*					
	CO	*VOC*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Demolition, Construction Dredge Ocean Disposal Ocean (90K CY)						
2024	1.4	0.2	2.0	0.1	0.2	0.2
de minimis Threshold/Major Source Threshold	100	25	25	100	100	100
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Demolition, Construction Dredge Ocean Disposal Upland (20K CY)						
2024	1.3	0.1	1.6	0.0	0.1	0.1
de minimis Threshold/Major Source Threshold	100	25	25	100	100	100
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Demolition, Construction, Dredge and Combined Ocean & Upland Disposal (110 CY)						
2024	2.7	0.4	3.6	0.1	0.3	0.3
de minimis Threshold/Major Source Threshold	100	25	25	100	100	100
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

20 (K) cubic yards transported upland disposal
90 (K) cubic yards with ocean disposal
110 (k) cubic yards combined