# APPENDIX E

Air Pollutant and GHG Emission Calculations

- **E1: PROPOSED PROJECT AIR POLLUTANT AND GHG EMISSIONS**
- **E2: FULL REMOVAL OF OFFSHORE CONDUITS ALTERNATIVE AIR POLLUTANT AND GHG EMISSIONS**

Revisions to Appendix E

The Pacific Sun Locomotive $CO_2e$ emission factor was corrected to equal the Large Line Haul Locomotive $CO_2e$ emission factor. This revision affects the following $CO_2e$ columns in tables within Appendix E1, with the revisions shown in **Bold/Underline** and ~~strikeout~~.

- Table S.4 Construction Emission Summary – GHG
- Table 1.1 Construction Emissions Summary – California
- Table 1.4b Train Trip Information to Clive UT or Oak Ridge TN
- Table 1.4b Rail Emissions Summary
- Table 5.4a Construction Emission Summary – Total GHG Emissions
- Table 5.4b GHG Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023

This emission factor correction reduces the estimated $CO_2e$ emissions for the Proposed Project by approximately 7.5 percent.

# APPENDIX E1

Proposed Project
Air Pollutant and GHG Emissions

PAGE INTENTIONALLY LEFT BLANK

**Proposed Project Onshore and Offshore**

Criteria Pollutants

**Table S.1 Construction Emission Summary - San Diego Air Pollution Control District (SDAPCD)**

**Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 (boat emissions up to 3 miles offshore)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 15.33 | 127.35 | 99.81 | 0.34 | 31.65 | 13.53 | 1.77 | 13.78 | 12.14 | 0.04 | 3.85 | 1.52 |
| Proposed Project Offshore (up to 3 miles) | 6.72 | 62.77 | 50.53 | 0.08 | 2.34 | 2.20 | 0.17 | 1.46 | 1.27 | 0.00 | 0.06 | 0.05 |
| **Total Emissions** | **22.05** | **190.12** | **150.34** | **0.43** | **33.99** | **15.73** | **1.94** | **15.24** | **13.42** | **0.04** | **3.91** | **1.57** |

**Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 (boat emissions all distances offshore**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 15.33 | 127.35 | 99.81 | 0.34 | 31.65 | 13.53 | 1.77 | 13.78 | 12.14 | 0.04 | 3.85 | 1.52 |
| Proposed Project Offshore (all distances) | 8.99 | 84.35 | 65.81 | 0.10 | 3.10 | 2.90 | 0.18 | 1.51 | 1.31 | 0.00 | 0.06 | 0.05 |
| **Total Emissions** | **24.32** | **211.70** | **165.62** | **0.45** | **34.75** | **16.43** | **1.95** | **15.29** | **13.45** | **0.04** | **3.91** | **1.58** |

**Proposed Project Onshore and Offshore**

Criteria Pollutants

**Table S.2 Construction Emission Summary - South Coast Air Quality Management District (SCAQMD)**

**Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 (boat emissions up to 3 miles offshore)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 3.57 | 101.96 | 23.78 | 0.56 | 14.72 | 4.77 | 0.35 | 10.17 | 2.15 | 0.07 | 1.79 | 0.54 |
| Proposed Project Offshore (up to 3 miles) | 3.44 | 30.81 | 23.23 | 0.13 | 4.04 | 1.60 | 0.07 | 0.50 | 0.47 | 0.00 | 0.09 | 0.03 |
| **Total Emissions** | **7.01** | **132.76** | **47.01** | **0.69** | **18.76** | **6.37** | **0.42** | **10.67** | **2.62** | **0.07** | **1.89** | **0.57** |

**Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 (boat emissions all distances offshore)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 3.57 | 101.96 | 23.78 | 0.56 | 14.72 | 4.77 | 0.35 | 10.17 | 2.15 | 0.07 | 1.79 | 0.54 |
| Proposed Project Offshore (all distances) | 11.87 | 111.48 | 81.75 | 0.13 | 4.04 | 3.68 | 0.08 | 0.66 | 0.58 | 0.00 | 0.10 | 0.04 |
| **Total Emissions** | **15.44** | **213.43** | **105.53** | **0.69** | **18.76** | **8.45** | **0.43** | **10.83** | **2.73** | **0.07** | **1.89** | **0.58** |

**Proposed Project Onshore and Offshore**
Criteria Pollutants
**Table S.3 Construction Emission Summary - Other Districts**

**Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 - Mojave Desert Air Quality Management District (MDAQMD)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 4.17 | 111.81 | 34.17 | 0.19 | 4.38 | 2.83 | 0.23 | 6.17 | 1.81 | 0.01 | 0.35 | 0.18 |
| Proposed Project Offshore (up to 3 miles) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Emissions** | **4.17** | **111.81** | **34.17** | **0.19** | **4.38** | **2.83** | **0.23** | **6.17** | **1.81** | **0.01** | **0.35** | **0.18** |

**Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 - Imperial County Air Quality Management District (ICAPCD)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 0.03 | 0.80 | 0.15 | 0.01 | 0.17 | 0.05 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Proposed Project Offshore (all distances) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Emissions** | **0.03** | **0.80** | **0.15** | **0.01** | **0.17** | **0.05** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** |

**Proposed Project Onshore and Offshore**
**Table S.4 Construction Emission Summary - GHG**

**Total GHG Emissions from Proposed Project Onshore and Proposed Project Offshore (boat emissions up to 3 miles offshore)**

| | Activity Levels (%) | SDAPCD | SCAQMD | MDAQMD | ICAPCD | Total All Districts |
|---|---|---|---|---|---|---|
| | | CO2e | CO2e | CO2e | CO2e | CO2e |
| **Proposed Project Onshore** | | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year |
| 2019 | 1.3% | **179** ~~226~~ | 318 | 69 | 0 | **567** ~~613~~ |
| 2020 | 3.2% | **456** ~~574~~ | 808 | 175 | 1 | **1,440** ~~1,558~~ |
| 2021 | 21% | **2,948** ~~3,712~~ | 5,222 | 1,133 | 6 | **9,309** ~~10,072~~ |
| 2022 | 20% | **2,879** ~~3,625~~ | 5,099 | 1,106 | 6 | **9,090** ~~9,836~~ |
| 2023 | **26%** | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 | **11,453** ~~12,392~~ |
| 2024 | 23% | **3,205** ~~4,035~~ | 5,677 | 1,231 | 6 | **10,120** ~~10,950~~ |
| 2025 | 5.9% | **836** ~~1,053~~ | 1,481 | 321 | 2 | **2,641** ~~2,857~~ |
| **Proposed Project Offshore** | | | | | | |
| 2023 | NA | 322 | 200 | 9 | NA | 531 |
| **Total GHG Emissions (up to 3 miles offshore)** | | **14,455** ~~**18,115**~~ | **25,231** | **5,438** | **28** | **45,151** ~~**48,811**~~ |
| **Amortized Over 30 Years (up to 3 miles offshore)** | | **482** ~~**604**~~ | **841** | **181** | **1** | **1,505** ~~**1,627**~~ |

**Total GHG Emissions from Proposed Project Onshore and Proposed Project Offshore (boat emissions all distances offshore)**

| | Activity Levels (%) | SDAPCD | SCAQMD | MDAQMD | ICAPCD | Total All Districts |
|---|---|---|---|---|---|---|
| | | CO2e | CO2e | CO2e | CO2e | CO2e |
| **Proposed Project Onshore** | | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year |
| 2019 | 1.3% | **179** ~~226~~ | 318 | 69 | 0 | **567** ~~613~~ |
| 2020 | 3.2% | **456** ~~574~~ | 808 | 175 | 1 | **1,440** ~~1,558~~ |
| 2021 | 21% | **2,948** ~~3,712~~ | 5,222 | 1,133 | 6 | **9,309** ~~10,072~~ |
| 2022 | 20% | **2,879** ~~3,625~~ | 5,099 | 1,106 | 6 | **9,090** ~~9,836~~ |
| 2023 | **26%** | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 | **11,453** ~~12,392~~ |
| 2024 | 23% | **3,205** ~~4,035~~ | 5,677 | 1,231 | 6 | **10,120** ~~10,950~~ |
| 2025 | 5.9% | **836** ~~1,053~~ | 1,481 | 321 | 2 | **2,641** ~~2,857~~ |
| **Proposed Project Offshore** | | | | | | 0 |
| 2023 | NA | 326 | 213 | 9 | 0 | 548 |
| **Total GHG Emissions (all distance offshore)** | | **14,459** ~~**18,119**~~ | **25,244** | **5,438** | **28** | **45,168** ~~**48,828**~~ |
| **Amortized Over 30 Years (all distance offshore)** | | **482** ~~**604**~~ | **841** | **181** | **1** | **1,506** ~~**1,628**~~ |

Note:
1. Proposed Project Onshore Activity Levels of each year were based on the percentages of waste generated during each year's activities.
2. GHG emissions of each year in Proposed Project Onshore were scaled based on the worst-case year GHG emissions and the activity level of 2023.

**Proposed Project Onshore and Offshore**
**Table S.4 Construction Emission Summary - GHG**

**GHG Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 (boat emissions up to 3 miles offshore)**

| Phases | SDAPCD CO2e ton/year | SCAQMD CO2e ton/year | MDAQMD CO2e ton/year | ICAPCD CO2e ton/year | SDAPCD CO2e metric ton/year | SCAQMD CO2e metric ton/year | MDAQMD CO2e metric ton/year | ICAPCD CO2e metric ton/year |
|---|---|---|---|---|---|---|---|---|
| Proposed Project Onshore | **3,999** ~~5,034~~ | 7,082 | 1,536 | 7.9 | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 |
| Proposed Project Offshore (up to 3 miles) | 355 | 221 | 9 | NA | 322 | 200 | 9 | NA |
| Worst Case Annual Construction GHG Emissions | **4,354** ~~5,389~~ | 7,303 | 1,546 | 7.9 | **3,950** ~~4,889~~ | 6,625 | 1,402 | 7 |
| 30-year Amortized Emissions | | | | | **482** ~~604~~ | 841 | 181 | 1 |

**GHG Emissions from Proposed Project Onshore and Proposed Project Offshore Overlapping Activities in 2023 (boat emissions all distances offshore)**

| Phases | SDAPCD CO2e ton/year | SCAQMD CO2e ton/year | MDAQMD CO2e ton/year | ICAPCD CO2e ton/year | SDAPCD CO2e metric ton/year | SCAQMD CO2e metric ton/year | MDAQMD CO2e metric ton/year | ICAPCD CO2e metric ton/year |
|---|---|---|---|---|---|---|---|---|
| Proposed Project Onshore | **3,999** ~~5,034~~ | 7,082 | 1,536 | 8 | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 |
| Proposed Project Offshore (all distances) | 360 | 235 | 9 | NA | 326 | 213 | 9 | NA |
| Worst Case Annual Construction GHG Emissions | **4,358** ~~5,394~~ | 7,317 | 1,546 | 8 | **3,954** ~~4,893~~ | 6,638 | 1,402 | 7 |
| 30-year Amortized Emissions | | | | | **482** ~~604~~ | 841 | 181 | 1 |

Note: 1 ton= 0.9072 metric ton

**Proposed Project Onshore**

**Table 1.1 Construction Emission Summary - California**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Air District | Sources | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| San Diego Air Pollution Control District (SDAPCD) | Onsite Construction Equipment and Vehicles | 13.70 | 97.07 | 95.14 | 0.31 | 4.29 | 3.98 | 30,749.01 | 1.68 | 12.02 | 11.87 | 0.04 | 0.54 | 0.50 | 3,719.95 |
| | Onsite Fugitive Dust | NA | NA | NA | NA | 26.09 | 8.73 | NA | NA | NA | NA | NA | 3.23 | 0.97 | NA |
| | Onsite Switching Locomotive | 0.11 | 1.97 | 0.32 | 0.00 | 0.04 | 0.04 | 118.09 | 0.01 | 0.26 | 0.04 | 0.00 | 0.01 | 0.01 | 15.35 |
| | Offsite Vehicles | 0.10 | 2.99 | 0.57 | 0.02 | 0.15 | 0.06 | 2,324.19 | 0.01 | 0.25 | 0.05 | 0.00 | 0.01 | 0.00 | 192.64 |
| | Offsite Fugitive Dust | NA | NA | NA | NA | 0.44 | 0.11 | NA | NA | NA | NA | NA | 0.04 | 0.01 | NA |
| | Rail | 1.42 | 25.32 | 3.78 | 0.01 | 0.63 | 0.61 | **1,425.98** ~~22,346.19~~ | 0.07 | 1.25 | 0.19 | 0.00 | 0.03 | 0.03 | **70.59** ~~1,106.14~~ |
| | **Total** | **15.33** | **127.35** | **99.81** | **0.34** | **31.65** | **13.53** | **34,617.27** ~~55,537.48~~ | **1.77** | **13.78** | **12.14** | **0.04** | **3.85** | **1.52** | **3,998.52** ~~5,034.07~~ |
| South Coast Air Quality Management District (SCAQMD) | Offsite Vehicles | 2.25 | 66.97 | 12.69 | 0.52 | 3.57 | 1.41 | 54,536.28 | 0.28 | 8.44 | 1.60 | 0.07 | 0.45 | 0.18 | 6,869.58 |
| | Offsite Fugitive Dust | NA | NA | NA | NA | 10.36 | 2.59 | NA | NA | NA | NA | NA | 1.30 | 0.33 | NA |
| | Rail | 1.32 | 34.98 | 11.09 | 0.04 | 0.79 | 0.77 | 4,290.05 | 0.07 | 1.73 | 0.55 | 0.00 | 0.04 | 0.04 | 212.36 |
| | **Total** | **3.57** | **101.96** | **23.78** | **0.56** | **14.72** | **4.77** | **58,826.33** | **0.35** | **10.17** | **2.15** | **0.07** | **1.79** | **0.54** | **7,081.94** |
| Mojave Desert Air Quality Management District (MDAQMD) | Offsite Vehicles | 0.34 | 10.00 | 1.89 | 0.08 | 0.53 | 0.21 | 8,141.98 | 0.04 | 1.13 | 0.21 | 0.01 | 0.06 | 0.02 | 918.08 |
| | Offsite Fugitive Dust | NA | NA | NA | NA | 1.55 | 0.39 | NA | NA | NA | NA | NA | 0.17 | 0.04 | NA |
| | Rail | 3.83 | 101.81 | 32.27 | 0.12 | 2.30 | 2.23 | 12,485.97 | 0.19 | 5.04 | 1.60 | 0.01 | 0.11 | 0.11 | 618.06 |
| | **Total** | **4.17** | **111.81** | **34.17** | **0.19** | **4.38** | **2.83** | **20,627.95** | **0.23** | **6.17** | **1.81** | **0.01** | **0.35** | **0.18** | **1,536.13** |
| Imperial County Air Pollution Control District (ICAPCD) | Offsite Vehicles | 0.03 | 0.80 | 0.15 | 0.01 | 0.04 | 0.02 | 654.29 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 7.85 |
| | Offsite Fugitive Dust | NA | NA | NA | NA | 0.12 | 0.03 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| | **Total** | **0.03** | **0.80** | **0.15** | **0.01** | **0.17** | **0.05** | **654.29** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** | **7.85** |

Note: Emissions are for the worst-case year of 2023.

**Proposed Project Onshore**
**Table 1.2 Onsite Equipment and Vehicle Emissions**

**Onsite Equipment Information and Emission Factors**

| | SCE Data | | | | | | CalEEMod Emission Factors (100% load) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment | Number | HP per equipment | Hours per Year per equipment | Hours per day per equipmen | Emission Factor Year | CalEEMod Default Load Factor | ROG g/hp-hr | NOx g/hp-hr | CO g/hp-hr | SO2 g/hp-hr | PM10 g/hp-hr | PM2.5 g/hp-hr | CO2 g/hp-hr | CH4 g/hp-hr | CO2e g/hp-hr |
| Grader | 1 | 175 | 1,560 | 6 | 2023 | 0.41 | 0.390 | 3.548 | 3.450 | 0.005 | 0.195 | 0.180 | 478.463 | 0.155 | 482.803 |
| Bulldozer | 1 | 255 | 1,560 | 6 | 2023 | 0.40 | 0.447 | 4.408 | 3.686 | 0.005 | 0.202 | 0.185 | 479.468 | 0.155 | 483.808 |
| 85 Ton Excavator | 4 | 438 | 1,560 | 6 | 2023 | 0.38 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.889 | 0.152 | 474.145 |
| 50 Ton Excavator | 8 | 316 | 1,560 | 6 | 2023 | 0.38 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.889 | 0.152 | 474.145 |
| 2000 Gal Water Truck | 4 | 200 | 1,560 | 6 | 2023 | 0.38 | 0.207 | 1.456 | 1.273 | 0.005 | 0.059 | 0.054 | 469.446 | 0.152 | 473.702 |
| 60 ft Boom Lift | 1 | 100 | 1,560 | 6 | 2023 | 0.29 | 0.552 | 4.875 | 3.944 | 0.005 | 0.323 | 0.297 | 469.889 | 0.152 | 474.145 |
| 100 foot boom Lift | 1 | 100 | 1,560 | 6 | 2023 | 0.29 | 0.552 | 4.875 | 3.944 | 0.005 | 0.323 | 0.297 | 469.889 | 0.152 | 474.145 |
| Cat 973 Track Loader | 2 | 263 | 1,560 | 6 | 2023 | 0.37 | 0.152 | 1.247 | 1.279 | 0.005 | 0.047 | 0.043 | 469.465 | 0.152 | 473.721 |
| Cat 966 Rubber Tire Loader | 2 | 250 | 1,560 | 6 | 2023 | 0.36 | 0.210 | 2.060 | 1.171 | 0.005 | 0.069 | 0.063 | 469.824 | 0.152 | 474.080 |
| 40 Ton Articulated Truck | 1 | 477 | 1,560 | 6 | 2023 | 0.38 | 0.187 | 1.324 | 1.221 | 0.005 | 0.048 | 0.044 | 475.049 | 0.154 | 479.361 |
| Bobcat Loader | 4 | 50 | 1,560 | 6 | 2023 | 0.37 | 0.621 | 3.857 | 4.629 | 0.005 | 0.185 | 0.170 | 513.796 | 0.166 | 518.444 |
| Misc Equipment | 1 | 100 | 1,560 | 6 | 2023 | 0.42 | 0.406 | 3.790 | 3.632 | 0.005 | 0.259 | 0.238 | 471.990 | 0.153 | 476.274 |
| 250 Ton Crane | 1 | 280 | 1,560 | 6 | 2023 | 0.29 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.578 |
| Diesel Generators | 1 | 275 | 2,600 | 10 | 2023 | 0.74 | 0.158 | 1.228 | 0.986 | 0.005 | 0.037 | 0.037 | 568.299 | 0.014 | 568.691 |
| Backup Diesel Generators | 3 | 275 | 200 | 2 | 2023 | 0.74 | 0.158 | 1.228 | 0.986 | 0.005 | 0.037 | 0.037 | 568.299 | 0.014 | 568.691 |
| Hyster | 1 | 250 | 1,560 | 6 | 2023 | 0.2 | 0.204 | 1.807 | 1.235 | 0.005 | 0.069 | 0.063 | 473.326 | 0.153 | 477.610 |
| 4000 Gal Water Truck | 1 | 300 | 1,560 | 6 | 2023 | 0.38 | 0.187 | 1.324 | 1.221 | 0.005 | 0.048 | 0.044 | 475.049 | 0.154 | 479.361 |
| Portable Rock Crusher | 1 | 440 | 1,360 | 8 | 2023 | 0.78 | 0.244 | 1.227 | 1.064 | 0.005 | 0.042 | 0.042 | 568.299 | 0.022 | 568.915 |
| 130 Ton Excavator | 1 | 750 | 1,560 | 6 | 2023 | 0.38 | 0.144 | 1.159 | 1.132 | 0.005 | 0.043 | 0.040 | 468.683 | 0.152 | 472.939 |
| Small Forklifts | 3 | 100 | 1,560 | 6 | 2023 | 0.2 | 0.327 | 3.057 | 3.647 | 0.005 | 0.189 | 0.174 | 471.529 | 0.153 | 475.813 |
| Rhino Utility Carts | 10 | 50 | 1,560 | 6 | 2023 | 0.42 | 0.866 | 4.594 | 5.074 | 0.005 | 0.322 | 0.296 | 529.339 | 0.171 | 534.127 |

Assumptions:
Operating days 5 days/week
operating weeks 52 weeks/year Rock crusher works 170 days (SCE, 12/04/2017)
1. CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014)
CO2 1
CH4 28
N2O 265
2. Diesel generator information was provided by SCE on 3/9/2017.
3. Other equipment information were provided by SCE on 6/16/2016 and 11/20/2017. Equipment hours per day were provided by SCE on 10/18/2016 and 11/20/2016.
4. Load factor and emission factors are from CalEEMod Appendix D: Table 3.4 Offroad Equipment Emission Factors (g/hp-hr) and Table 3.3 OFFROAD Default Horsepower and Load Factors (October 2017)
5. Worst-case year is 2023, based on SCE information.

**Proposed Project Onshore**

**Table 1.2 Onsite Equipment and Vehicle Emissions**

**Onsite Equipment Emissions**

| Onsite Equipment | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Grader | 0.37 | 3.37 | 3.27 | 0.00 | 0.19 | 0.17 | 458.22 | 0.05 | 0.44 | 0.43 | 0.00 | 0.02 | 0.02 | 59.57 |
| Bulldozer | 0.60 | 5.95 | 4.97 | 0.01 | 0.27 | 0.25 | 652.76 | 0.08 | 0.77 | 0.65 | 0.00 | 0.04 | 0.03 | 84.86 |
| 85 Ton Excavator | 1.07 | 7.87 | 9.25 | 0.04 | 0.26 | 0.25 | 4,175.49 | 0.14 | 1.02 | 1.20 | 0.01 | 0.03 | 0.03 | 542.81 |
| 50 Ton Excavator | 1.55 | 11.35 | 13.35 | 0.06 | 0.38 | 0.36 | 6,024.91 | 0.20 | 1.48 | 1.74 | 0.01 | 0.05 | 0.05 | 783.24 |
| 2000 Gal Water Truck | 0.83 | 5.85 | 5.12 | 0.02 | 0.24 | 0.22 | 1,904.84 | 0.11 | 0.76 | 0.67 | 0.00 | 0.03 | 0.03 | 247.63 |
| 60 ft Boom Lift | 0.21 | 1.87 | 1.51 | 0.00 | 0.12 | 0.11 | 181.88 | 0.03 | 0.24 | 0.20 | 0.00 | 0.02 | 0.01 | 23.64 |
| 100 foot boom Lift | 0.21 | 1.87 | 1.51 | 0.00 | 0.12 | 0.11 | 181.88 | 0.03 | 0.24 | 0.20 | 0.00 | 0.02 | 0.01 | 23.64 |
| Cat 973 Track Loader | 0.39 | 3.21 | 3.29 | 0.01 | 0.12 | 0.11 | 1,219.52 | 0.05 | 0.42 | 0.43 | 0.00 | 0.02 | 0.01 | 158.54 |
| Cat 966 Rubber Tire Loader | 0.50 | 4.90 | 2.79 | 0.01 | 0.16 | 0.15 | 1,128.76 | 0.07 | 0.64 | 0.36 | 0.00 | 0.02 | 0.02 | 146.74 |
| 40 Ton Articulated Truck | 0.45 | 3.18 | 2.93 | 0.01 | 0.12 | 0.11 | 1,149.32 | 0.06 | 0.41 | 0.38 | 0.00 | 0.01 | 0.01 | 149.41 |
| Bobcat Loader | 0.61 | 3.78 | 4.53 | 0.00 | 0.18 | 0.17 | 507.47 | 0.08 | 0.49 | 0.59 | 0.00 | 0.02 | 0.02 | 65.97 |
| Misc Equipment | 0.23 | 2.11 | 2.02 | 0.00 | 0.14 | 0.13 | 264.60 | 0.03 | 0.27 | 0.26 | 0.00 | 0.02 | 0.02 | 34.40 |
| 250 Ton Crane | 0.25 | 2.70 | 2.16 | 0.01 | 0.11 | 0.10 | 511.88 | 0.03 | 0.35 | 0.28 | 0.00 | 0.01 | 0.01 | 66.54 |
| Diesel Generators | 0.71 | 5.51 | 4.42 | 0.02 | 0.17 | 0.17 | 2,551.34 | 0.09 | 0.72 | 0.58 | 0.00 | 0.02 | 0.02 | 331.67 |
| Backup Diesel Generators | 0.43 | 3.31 | 2.65 | 0.01 | 0.10 | 0.10 | 1,530.80 | 0.02 | 0.17 | 0.13 | 0.00 | 0.00 | 0.00 | 76.54 |
| Hyster | 0.13 | 1.20 | 0.82 | 0.00 | 0.05 | 0.04 | 315.88 | 0.02 | 0.16 | 0.11 | 0.00 | 0.01 | 0.01 | 41.06 |
| 4000 Gal Water Truck | 0.28 | 2.00 | 1.84 | 0.01 | 0.07 | 0.07 | 722.85 | 0.04 | 0.26 | 0.24 | 0.00 | 0.01 | 0.01 | 93.97 |
| Portable Rock Crusher | 1.48 | 7.43 | 6.44 | 0.03 | 0.25 | 0.25 | 3,443.59 | 0.13 | 0.63 | 0.55 | 0.00 | 0.02 | 0.02 | 292.71 |
| 130 Ton Excavator | 0.54 | 4.37 | 4.27 | 0.02 | 0.16 | 0.15 | 1,782.90 | 0.07 | 0.57 | 0.55 | 0.00 | 0.02 | 0.02 | 231.78 |
| Small Forklifts | 0.26 | 2.43 | 2.89 | 0.00 | 0.15 | 0.14 | 377.63 | 0.03 | 0.32 | 0.38 | 0.00 | 0.02 | 0.02 | 49.09 |
| Rhino Utility Carts | 2.41 | 12.76 | 14.09 | 0.01 | 0.89 | 0.82 | 1,483.69 | 0.31 | 1.66 | 1.83 | 0.00 | 0.12 | 0.11 | 192.88 |
| **Total** | **13.52** | **96.98** | **94.15** | **0.31** | **4.27** | **3.97** | **30570.19** | **1.66** | **12.01** | **11.74** | **0.04** | **0.54** | **0.50** | **3696.70** |

Note:

1. Onsite equipment emission factors and load factors were obtained from CalEEMod User's Guide, Appendix D: Default Data Tables (October 2017)

**Onsite Vehicle Emission Factors (EMFAC2014)**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Pickups | 0.332 | 0.158 | 1.805 | 0.003 | 0.048 | 0.021 | 324.446 |

Note:

Vehicle emission factors were obtained from EMFAC2014:

Region: Statewide

Calendar year: 2023

Speed and model year: aggregated

Vehicle type: LDT1 gasoline

Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM2.5, emissions also include tire wear and brake wear

EMFACT2014 does not provide emissions of N2O and CH4 from vehicles. CO2e emissions were assumed to be the same as CO2

**Onsite Vehicle Emissions**

| Onsite Equipment | Number | Miles/day per vehicle | Miles/year per vehicle | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Pickups | 5 | 50 | 13,000 | 0.183 | 0.087 | 0.995 | 0.002 | 0.026 | 0.011 | 178.817 | 0.024 | 0.011 | 0.129 | 0.000 | 0.003 | 0.001 | 23.2 |
| **Total** | | | | **0.183** | **0.087** | **0.995** | **0.002** | **0.026** | **0.011** | **178.817** | **0.024** | **0.011** | **0.129** | **0.000** | **0.003** | **0.001** | **23.2** |

Note:

1. Miles traveled by pickup trucks were assumed to be 50 miles each day, for each vehicle.

2. It was assumed that the pickup trucks would work 5 days per week, 52 weeks per year, for a total of 260 working days

**Proposed Project Onshore**
**Table 1.3a Waste Hauling Trip Assumptions**

**Truck Trip Assumptions for Waste Hauling**

| | Total Trips | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|
| Truck Trip% by year | 100% | 1.3% | 3.2% | 21% | 20% | **26%** | 23% | 5.9% |
| La Paz, AZ | 31,650 | 402 | 1,022 | 6,603 | 6,448 | **8,124** | 7,178 | 1,873 |
| Clive, UT or Oak Ridge, TN | 366 | 5 | 12 | 76 | 75 | **94** | 83 | 22 |
| Andrews, TX | 95 | 1 | 3 | 20 | 19 | **24** | 22 | 6 |
| Total | 32111 | 408 | 1037 | 6699 | 6542 | **8242** | 7283 | 1901 |

**Truck Mileage by Air Districts - Round Trip (RT) Distance**

| | La Paz, AZ | Clive, UT or Oak Ridge, TN | Andrews, TX |
|---|---|---|---|
| **Air Districts** | **RT Miles** | **RT Miles** | **RT Miles** |
| San Diego | 7.5 | 7.5 | 252 |
| Imperial | NA | NA | 188 |
| South Coast | 421 | 176 | NA |
| Mojave | 60 | 414 | NA |

Notes:
1. Worst-case year 2023
2. Total number of truck trips of the entire phase was provided by SCE on 1/31/2017, which was derived from the SONGS Waste Generation Forecast.
3. Sum of the total trips calculated from each year may be slightly different from data in the "total trips" colume due to rounding.
4. For purposes of the air quality calculations, the in-state (CA) mileage and routes are based on the final destinations listed in the tables. With regard to the assumptions for Clive, UT or Oak Ridge, TN, the listed data reflects mileage in the Mojave Air District to account for potential routing to Oak Ridge, TN, which would be the longer of the two potential haul routes. However, while the Oak Ridge, TN data are provided for bounding purposes, it is expected that Clive, UT would be the more likely destination for Class A waste, as described in Section 2.3.11 of the Project Description.

**Proposed Project Onshore**

**Table 1.3b Backfill Material Hauling Trip Assumptions**

**Backfill Hauling Trips**

| Year | Volume | Volume | Truck | Material |
|---|---|---|---|---|
| | Cubic Yards | Cubic Yards per Load | Loads | Type |
| 2022 | 32,000 | 14 | 2,286 | dirt |
| 2023 | 40,000 | 14 | 2,857 | dirt |
| 2023 | NA | NA | 700 | Concrete Slurry |
| 2024 | 130,000 | 14 | 9,286 | dirt |
| 2025 | 30,000 | 14 | 2,143 | dirt |

Notes:

1. Dirt import is using bottom dump trucks at 14 cubic yards per load.
2. Backfill hauling trip data was provided by SCE on 1/31/2017 and 11/20/2017.
3. Vehicle round trip distance is assumed to be 100 miles. Materials are assumed to be from South Coast Air Quality Management District.

**Proposed Project Onshore**
**Table 1.3c Construction Emissions - Vehicles**

**Vehicle Trip Summary**

| Air Districts | Vehicles | Number of Round Trips | Number of Round Trips | VMT/Round Trip/vehicle | Total Miles/day | Total Miles Per year |
|---|---|---|---|---|---|---|
| | | trips/day | trips/year | VMT/RT | VMT/day | VMT/year |
| | Drayage Truck | 3 | 780 | 20 | 60 | 15,600 |
| | Worker Commuting | 0 | 0 | 60 | 0 | 0 |
| | Long-haul trucks - Route to South Coast | 11 | 2,857 | 7.5 | 83 | 21,428 |
| | Long-haul trucks - Route Victorville | 3 | 700 | 7.5 | 23 | 5,250 |
| | Long-haul trucks - Route La Paz, AZ | 32 | 8,124 | 7.5 | 240 | 60,930 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 1 | 94 | 7.5 | 7.5 | 705 |
| SDAPCD | Long-haul trucks - Route Andrews, TX | 1 | 24 | 252 | 252 | 6,045 |
| | Long-haul trucks - Route to South Coast | 11 | 2,857 | 132.5 | 1,458 | 378,553 |
| | Long-haul trucks - Route Victorville | 3 | 700 | 176.0 | 528 | 123,200 |
| | Long-haul trucks - Route La Paz, AZ | 32 | 8,124 | 421 | 13,472 | 3,420,204 |
| SCAQMD | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 1 | 94 | 176 | 176 | 16,544 |
| | Long-haul trucks - Route Victorville | 3 | 700 | 40 | 120 | 28,000 |
| | Long-haul trucks - Route La Paz, AZ | 32 | 8,124 | 60 | 1,920 | 487,440 |
| MDAQMD | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 1 | 94 | 414 | 414 | 38,916 |
| ICAPCD | Long-haul trucks - Route Andrews, TX | 1 | 24 | 188 | 188 | 4,501 |

Assumptions:
Operating days 5 days/week
operating weeks 52 weeks/year
Note:
1. Worker commute trips in SDAPCD were set to zero because worker commute trips will not increase in comparison to baseline conditions (as of NOP).
2. For purposes of the air quality calculations, the in-state (CA) mileage and routes are based on the final destinations listed in the table. With regard to the assumptions for Clive, UT or Oak Ridge, TN, the listed data reflects mileage to Oak Ridge, TN, which would be the longer of the two potential haul routes in the Mojave Air District. However, while the Oak Ridge, TN data are provided for bounding purposes, it is expected that Clive, UT would be the more likely destination for Class A waste, as described in Section 2.3.11 of the Project Description.

**Vehicle Emission Factors**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Drayage Truck | 0.107 | 3.022 | 0.620 | 0.016 | 0.104 | 0.042 | 1631.883 |
| Commuting Vehicles | 0.112 | 0.075 | 0.874 | 0.003 | 0.047 | 0.020 | 286.401 |
| Long-haul trucks | 0.065 | 1.943 | 0.368 | 0.015 | 0.104 | 0.041 | 1582.349 |

Note:
1. Vehicle emission factors were obtained from EMFAC2014:
Region: Statewide
Calendar year: 2023
Speed and model year: aggregated
Long-haul trucks: assumed to be heavy-heavy duty single unit diesel truck.
Drayage trucks: Heavy-heavy duty diesel drayage Truck near South Coast.
Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM2.5, emissions also include tire wear and brake wear.
EMFAC2014 does not provide emissions of N2O and CH4 from vehicles. CO2e emissions were assumed to be the same as CO2.

**Proposed Project Onshore**
**Table 1.3c Construction Emissions - Vehicles**
**Vehicle Maximum Daily Emissions**

| | | | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Air Districts** | **Vehicles** | **Trip miles** | **Trip miles** | **ROG** | **NOx** | **CO** | **SO2** | **PM10** | **PM2.5** | **CO2e** | **ROG** | **NOx** | **CO** | **SO2** | **PM10** | **PM2.5** | **CO2e** |
| | | **VMT/day** | **VMT/year** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **ton/year** | **ton/year** | **ton/year** | **ton/year** | **ton/year** | **ton/year** | **ton/year** |
| | Drayage Truck | 60 | 15,600 | 0.014 | 0.400 | 0.082 | 0.002 | 0.014 | 0.005 | 215.9 | 0.002 | 0.052 | 0.011 | 0.000 | 0.002 | 0.001 | 28.1 |
| | Staff Commuting | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 |
| | Long-haul trucks - Route to South Coast | 82.5 | 21,428 | 0.012 | 0.353 | 0.067 | 0.003 | 0.019 | 0.007 | 287.795 | 0.002 | 0.046 | 0.009 | 0.000 | 0.002 | 0.001 | 37.374 |
| | Long-haul trucks - Route Victorville | 22.5 | 5,250 | 0.003 | 0.096 | 0.018 | 0.001 | 0.005 | 0.002 | 78.490 | 0.000 | 0.011 | 0.002 | 0.000 | 0.001 | 0.000 | 9.157 |
| | Long-haul trucks - Route La Paz, AZ | 240 | 60,930 | 0.035 | 1.028 | 0.195 | 0.008 | 0.055 | 0.022 | 837.2 | 0.004 | 0.131 | 0.025 | 0.001 | 0.007 | 0.003 | 106.3 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 7.5 | 705 | 0.001 | 0.032 | 0.006 | 0.000 | 0.002 | 0.001 | 26.2 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 1.2 |
| | Long-haul trucks - Route Andrews, TX | 251.88 | 6,045 | 0.036 | 1.079 | 0.204 | 0.008 | 0.058 | 0.023 | 878.7 | 0.000 | 0.013 | 0.002 | 0.000 | 0.001 | 0.000 | 10.5 |
| SDAPCD | **SDAPCD Total** | **664** | **109,958** | **0.101** | **2.989** | **0.573** | **0.022** | **0.152** | **0.060** | **2,324.2** | **0.009** | **0.254** | **0.049** | **0.002** | **0.013** | **0.005** | **192.6** |
| | Long-haul trucks - Route to South Coast | 1457.5 | 378,553 | 0.210 | 6.244 | 1.183 | 0.049 | 0.333 | 0.132 | 5,084.4 | 0.027 | 0.811 | 0.154 | 0.006 | 0.043 | 0.017 | 660.3 |
| | Long-haul trucks - Route Victorville | 528 | 123,200 | 0.076 | 2.262 | 0.429 | 0.018 | 0.121 | 0.048 | 1,841.9 | 0.009 | 0.264 | 0.050 | 0.002 | 0.014 | 0.006 | 214.9 |
| | Long-haul trucks - Route La Paz, AZ | 13472 | 3,420,204 | 1.941 | 57.714 | 10.937 | 0.448 | 3.076 | 1.219 | 46,996.1 | 0.246 | 7.326 | 1.388 | 0.057 | 0.390 | 0.155 | 5,965.6 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 176 | 16,544 | 0.025 | 0.754 | 0.143 | 0.006 | 0.040 | 0.016 | 614.0 | 0.001 | 0.035 | 0.007 | 0.000 | 0.002 | 0.001 | 28.9 |
| SCAQMD | **SCAQMD Total** | **15,634** | **3,938,501** | **2.253** | **66.974** | **12.692** | **0.520** | **3.570** | **1.415** | **54,536.3** | **0.284** | **8.436** | **1.599** | **0.066** | **0.450** | **0.178** | **6,869.580** |
| | Long-haul trucks - Route Victorville | 120 | 28,000 | 0.017 | 0.514 | 0.097 | 0.004 | 0.027 | 0.011 | 418.611 | 0.002 | 0.060 | 0.011 | 0.000 | 0.003 | 0.001 | 48.838 |
| | Long-haul trucks - Route La Paz, AZ | 1920 | 487,440 | 0.277 | 8.225 | 1.559 | 0.064 | 0.438 | 0.174 | 6,697.8 | 0.035 | 1.044 | 0.198 | 0.008 | 0.056 | 0.022 | 850.2 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 414 | 38,916 | 0.060 | 1.774 | 0.336 | 0.014 | 0.095 | 0.037 | 1,444.2 | 0.003 | 0.083 | 0.016 | 0.001 | 0.004 | 0.002 | 67.9 |
| MDAQMD | **MDAQMD Total** | **2334** | **526,356** | **0.336** | **9.999** | **1.895** | **0.078** | **0.533** | **0.211** | **8,142.0** | **0.038** | **1.127** | **0.214** | **0.009** | **0.060** | **0.024** | **918.1** |
| | Long-haul trucks - Route Andrews, TX | 188 | 4,501 | 0.027 | 0.804 | 0.152 | 0.006 | 0.043 | 0.017 | 654.3 | 0.000 | 0.010 | 0.002 | 0.000 | 0.001 | 0.000 | 7.9 |
| ICAPCD | **ICAPCD Total** | **187.56** | **4,501** | **0.027** | **0.804** | **0.152** | **0.006** | **0.043** | **0.017** | **654.3** | **0.000** | **0.010** | **0.002** | **0.000** | **0.001** | **0.000** | **7.9** |

**Proposed Project Onshore**
**Table 1.4a Assumptions Used for Rail Trips**

**Train Trips by Year**

| | Total Number of Rail Trips | Train Trips by year | | | | | | | Worst-case Train Trips in 2023 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | Number of trips | Maximum daily trips |
| Railcar loads % by year | | 1.3% | 3.2% | 21% | 20% | 26% | 23% | 6% | | |
| to Clive, UT or Oak Ridge, TN | 388 | 5 | 13 | 81 | 79 | 99 | 88 | 23 | 99 | 1 |

Note:
1. Worst-case train trips would occur in 2023 based on SCE data provided on 11/20/2017.
2. Total Proposed Project Onshore rail trip needs were provided by SCE on 1/31/2017, based on the type and amount of Proposed Project Onshore waste.
3. Only one train would be loaded on each day.

Assumptions:

| | | |
|---|---|---|
| Operating days | 5 | days/week |
| operating weeks | 52 | weeks/year |

**Rail Mileage by Air Districts**

| Air Basin/State | RT Miles | Miles Traveled by Loaded Trains |
|---|---|---|
| San Diego APCD/BNSF | 30.2 | 15.1 |
| San Diego APCD/Pacific Sun | 27.2 | 13.6 |
| South Coast AQMD | 201 | 100.5 |
| Mojave AQMD | 585 | 292.5 |

Note:
1. Round trip distance in San Diego APCD includes the travel from SONGS to BNSF yard at Stuart Mesa, then from Stuart Mesa to Clive, UT or Oak Ridge, TN. The return trip is from Clive, UT or Oak Ridge, TN to Stuart Mesa to SONGS. For bounding purposes, the in-state (CA) mileage from Oak Ridge, TN is used which is the longer of the two potential haul routes in the Mojave Air District.
2. Pacific Sun Railroad is responsible for rail travel between SONGS and the Stuart Mesa Railyard (both loaded and empty railcars).
3. Loaded rail trip distance in San Diego APCD include the travel from SONGS to BNSF yard at Stuart Mesa (Pacific Sun), then from Stuart Mesa to the boarder of South Coast AQMD

**Proposed Project Onshore**
**Table 1.4b Construction Emissions - Trains**

**Train Trip Information (to Clive, UT or Oak Ridge, TN)**

| Air Districts | Daily # train round trips | Annual # train round trips | VMT/Round Trip | Train Load | Total ton-mile/day | Total ton-mile/year |
|---|---|---|---|---|---|---|
| | Trains/day | Trains/year | VMT/RT | ton/train/RT | ton-mile/day | ton-mile/year |
| San Diego APCD/BNSF | 1 | 99 | 30.2 | 376 | 1.14E+04 | 1.12E+06 |
| San Diego APCD/Pacific Sun | 1 | 99 | 27.2 | 506 | 1.38E+04 | 1.36E+06 |
| SCAQMD | 1 | 99 | 201 | 376 | 7.56E+04 | 7.48E+06 |
| MDAQMD | 1 | 99 | 585 | 376 | 2.20E+05 | 2.18E+07 |

**Locomotive Emission Factors -large line haul locomotives**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|
| g/gal | 3.159 | 84 | 26.624 | 0.096 | 1.9 | 1.843 | 10,210 | 0.8 | 0.26 | 10,301 |
| g/ton-mile | 0.0079 | 0.2100 | 0.0666 | 0.0002 | 0.0048 | 0.0046 | 25.5250 | 0.002 | 0.00065 | 25.75325 |

**Locomotive Emission Factors - Pacific Sun Uncontrolled (pre-Tier 0) switch locomotives**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|
| g/bhp-hr | 1.06353 | 17.4 | 1.83 | -- | 0.44 | 0.427 | -- | -- | -- | -- |
| g/gal | 16.166 | 264.480 | 27.816 | 0.096 | 6.688 | 6.487 | 10,210 | 0.8 | 0.26 | 286,092 |
| g/ton-mile | 0.0404 | 0.6612 | 0.0695 | 0.0002 | 0.0167 | 0.0162 | 25.5250 | 0.0020 | 0.0007 | **25.7533** ~~715.2300~~ |

Note:

**BNSF Large Line Haul Locomotives**

1. NOx and PM10 emission factors are from the Tables 5 and 6 of Emission Factors for Locomotives, EPA-420-F-09-025 April 2009. Emission factors for large line haul locomotives in 2023 were used.

2. ROG emission factors are calculated by multiplying HC emission factor in Table 7 of Emission Factors for Locomotives (EPA-420-F-09-025 April 2009) by a factor of 1.053, according to the approach suggested in this document. Emission factors for large line haul locomotives were used.
3. PM2.5 emission factors are calculated by multiplying the PM10 emission factor by a factor of 0.97, following the approach in Emission Factors for Locomotives (EPA-420-F-09-025 April 2009).
4. SO2 emission factors were estimated based on the sulfur content of diesel fuel, and assumed 100% of the sulfur content converted to SO2.
5. CO emission factors were converted from 1.28 g/hp-hr in Table 1 (line haul) of the Emission Factors for Locomotives (EPA-420-F-09-025 April 2009) with the conversion factors in Table 3 of the document.
6. CO2 emission factors were from 2016 Climate Registry Default Emission Factors, Table 13.1 US Default CO2 Emission Factors for Transport Fuels. Emission factor is for diesel and biomass Combustion.
7. CH4 and N2O emission factors were from 2016 Climate Registry Default Emission Factors, Table 13.7 US Default CH4 and N2O Emission Factors for Non-Highway Vehicles. Emission factors are for diesel locomotives.
8.CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014).

CO2 1
CH4 28
N2O 265

9. Emission factor in g/ton-mile for line-haul were derived from g/gal using a factor of 400 ton-mile/gallon, as indicated in Emission Factors for Locomotives (EPA-420-F-09-025 April 2009).

**Pacific Sun Switch Locomotives**

1. Available information indicates that Pacific Sun has four switch locomotives that are all manufactured prior to Tier 0 requirements (i.e. Uncontrolled).
2. NOx, PM10, HC, and CO emissions factors and conversion factors are from Table 2 and Table 3 of Emission Factors for Locomotives, EPA-420-F-09-025 April 2009.
3. ROG emission factors are calculated by multiplying HC emission factor in Table 7 of Emission Factors for Locomotives (EPA-420-F-09-025 April 2009) by a factor of 1.053, according to the approach suggested in this document.
4. PM2.5 emission factors are calculated by multiplying the PM10 emission factor by a factor of 0.97, following the approach in Emission Factors for Locomotives (EPA-420-F-09-025 April 2009).
5. SO2 emission factors were estimated based on the sulfur content of diesel fuel, and assumed 100% of the sulfur content converted to SO2.
6. CO2 emission factors were from 2016 Climate Registry Default Emission Factors, Table 13.1 US Default CO2 Emission Factors for Transport Fuels. Emission factor is for diesel and biomass Combustion.
7. CH4 and N2O emission factors were from 2016 Climate Registry Default Emission Factors, Table 13.7 US Default CH4 and N2O Emission Factors for Non-Highway Vehicles. Emission factors are for diesel locomotives.

8.CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014).

CO2 1
CH4 28
N2O 265

9. Emission factor in g/ton-mile for line-haul with locomotive (for Pacific Sun short hauls) were derived from g/gal using a factor of 440 ton-mile/gallon, as indicated in Emission Factors for Locomotives (EPA-420-F-09-025 April 2009), that includes a 10 percent factor added for locomotive weight fraction increase/loss of efficiency for these short switching trains.

**Assumptions:**

| | | | |
|---|---|---|---|
| Operating days | 5 | days/week | |
| operating weeks | 52 | weeks/year | |
| | | | |
| Sulfur content | 15 | ppm | (ultra low sulfur diesel fuel) |
| Diesel density | 7.05 | lb/gallon | (EPA AP42 density for distillate oil) |
| Empty train weight | 180 | tons/train | |
| Loaded train weight | 572 | tons/train | (average of train load) |
| Average train weight per round trip | | | |
| | 376 | tons/train | (outside of SDAPCD) |
| | 376 | tons/train | (inside of SDAPCD) |
| | 506 | tons/train | (w/locomotive Pacific Sun inside of SDAPCD), provided by SCE on 11/20/2017 |

Worst-case rail trips would occur in 2023.
Trip information were provided by SCE on 1/31/2017 and 11/20/2017.

**Rail Emissions Summary**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Air Districts** | **Rail** | **VOC** | **NOx** | **CO** | **SO2** | **PM10** | **PM2.5** | **CO2e** | **VOC** | **NOx** | **CO** | **SO2** | **PM10** | **PM2.5** | **CO2e** |
| | | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **lb/day** | **ton/year** | **ton/year** | **ton/year** | **ton/year** | **ton/year** | **ton/year** | **ton/year** |
| | BNSF, Rail-Route Clive, UT or Oak Ridge, TN | 0.20 | 5.26 | 1.67 | 0.01 | 0.12 | 0.12 | 644.6 | 0.01 | 0.26 | 0.08 | 0.00 | 0.01 | 0.01 | 31.9 |
| | Pacific Sun | 1.23 | 20.06 | 2.11 | 0.01 | 0.51 | 0.49 | **781.41** ~~21701.62~~ | 0.06 | 0.99 | 0.10 | 0.00 | 0.03 | 0.02 | **38.68** ~~1074.23~~ |
| SDAPCD | **SDAPCD Total** | **1.42** | **25.32** | **3.78** | **0.01** | **0.63** | **0.61** | **1425.98** ~~22346.19~~ | **0.07** | **1.25** | **0.19** | **0.00** | **0.03** | **0.03** | **70.59** ~~1186.14~~ |
| | BNSF, Rail-Route Clive, UT or Oak Ridge, TN | 1.32 | 34.98 | 11.09 | 0.04 | 0.79 | 0.77 | 4,290.1 | 0.07 | 1.73 | 0.55 | 0.00 | 0.04 | 0.04 | 212.4 |
| SCAQMD | **SCAQMD Total** | **1.32** | **34.98** | **11.09** | **0.04** | **0.79** | **0.77** | **4290.05** | **0.07** | **1.73** | **0.55** | **0.00** | **0.04** | **0.04** | **212.36** |
| | BNSF, Rail-Route Clive, UT or Oak Ridge, TN | 3.83 | 101.81 | 32.27 | 0.12 | 2.30 | 2.23 | 12,486.0 | 0.19 | 5.04 | 1.60 | 0.01 | 0.11 | 0.11 | 618.1 |
| MDAQMD | **MDAQMD Total** | **3.83** | **101.81** | **32.27** | **0.12** | **2.30** | **2.23** | **12485.97** | **0.19** | **5.04** | **1.60** | **0.01** | **0.11** | **0.11** | **618.06** |

**Proposed Project Onshore**
**Table 1.4c Construction Emissions - Switching Locomotive**

**Switching Locomotive Fuel Consumption**

| Air Districts | Switching Locomotive | Fuel Consumption Rate | | |
|---|---|---|---|---|
| | hours/day | gal/hour | gal/day | gal/year |
| SDAPCD | 4 | 1.3 | 5.2 | 1,352 |

Note:
Switching locomotive operating hours and fuel consumption data were provided by SCE based on a typical railcar mover Commander (NORDCO) SWX525, with Cummins 6.7L Diesel Engine, 215 HP@2200 RPM

**Locomotive Emission Factors - Switching locomotives**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|
| Emission Factor (g/gal) | 9.477 | 172 | 27.816 | 0.096 | 3.7 | 3.589 | 10,210 | 0.8 | 0.26 | 10,301 |

Note:
1. NOx and PM10 emission factors are from the Tables 5 and 6 of Emission Factors for Locomotives, EPA-420-F-09-025 April 2009. Emission factors for large switch locomotives in 2023 were used

2. ROG emission factors are calculated by multiplying HC emission factor in Table 7 of Emission Factors for Locomotives (EPA-420-F-09-025 April 2009) by a factor of 1.053, according to the approach suggested in this document. Emission factors for large Switch locomotives were used.
3. PM2.5 emission factors are calculated by multiplying the PM10 emission factor by a factor of 0.97, following the approach in Emission Factors for Locomotives (EPA-420-F-09-025 April 2009)
4. SO2 emission factors were estimated based on the sulfur content of diesel fuel, and assumed 100% of the sulfur content converted to SO2
5. CO emission factors were converted from 1.83 g/hp-hr in Table 2 (Switch) of the Emission Factors for Locomotives (EPA-420-F-09-025 April 2009) with the conversion factors in Table 3 of the document
6. CO2 emission factors were from 2016 Climate Registry Default Emission Factors, Table 13.1 US Default CO2 Emission Factors for Transport Fuels. Emission factor is for diesel and biomass Combustion
7. CH4 and N2O emission factors were from 2016 Climate Registry Default Emission Factors, Table 13.7 US Default CH4 and N2O Emission Factors for Non-Highway Vehicles. Emission factors are for diesel locomotives
8.CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014).

CO2 1
CH4 28
N2O 265

**Assumptions:**

| | | | |
|---|---|---|---|
| Operating days | 5 | days/week | |
| operating weeks | 52 | weeks/year | |
| Sulfur content | 15 | ppm | (Ultra low sulfur diesel fuel) |
| Diesel density | 7.05 | lb/gallon | (EPA AP42 density for distillate oil) |

**Rail Emissions Summary - Switching Locomotives**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | VOC | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Air Districts | Switching | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | | 0.11 | 1.97 | 0.32 | 0.00 | 0.04 | 0.04 | 118.09 | 0.01 | 0.26 | 0.04 | 0.00 | 0.01 | 0.01 | 15.35 |
| SDAPCD | **SDAPCD Total** | **0.11** | **1.97** | **0.32** | **0.00** | **0.04** | **0.04** | **118.1** | **0.01** | **0.26** | **0.04** | **0.00** | **0.01** | **0.01** | **15.35** |

**Proposed Project Onshore**
**Table 1.5 Onsite Table Fugitive Dust Emissions**

**A) Bulldozing**

**Fugitive dust emissions from bulldozing**

| Activity | Number of Equipment | Maximum daily hours | Annual Hours | Emission Factor | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| | | hours/day | hours/year | lb/hr | lb/hr | lb/day | lb/day | ton/year | ton/year |
| Bulldozing | 1 | 6 | 1560 | 0.753 | 0.414 | 4.52 | 2.48 | 0.59 | 0.32 |

Note:
Daily hours per bulldozer: 6 hours/day
PM emissions were calculated using the following equation and parameters:
Emission Factor (lb/hr)= k x $(s)^{1.5}$ / $(M)^{1.4}$ For PM10 and k x 5.7 x $(s)^{1.2}$ / $(M)^{1.3}$ for PM2.5 (AP-42 Section 11.9 for overburden)
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 6.9% - CalEEMod default for overburden)
M = Moisture Content = 7.9% (CalEEMod default)

**B) Grading**

**Fugitive dust emissions from grading**

| Activity | Number of Grading Equipment | # acres/equipment | Acreage Graded/Day | Grader VMT | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| | | | acres | miles/day | miles/year | lb/VMT | lb/VMT | lb/day | lb/day | ton/year | ton/year |
| Grading | 1 | 0.5 | 0.5 | 0.34 | 89.38 | 1.54 | 0.17 | 0.53 | 0.06 | 0.07 | 0.01 |

Note:
working days: 260
PM emissions were calculated using the following equation and parameters:
Emission factor (lb/VMT) = k x 0.051 x $(S)^{2.0}$ for PM10 and k x 0.040 x $(S)^{2.5}$ for PM2.5
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed, CalEEMod default = 7.1 miles/hour

VMT = As / Wb X 43,560 (sqft/acre) /5280 (ft/mile)
VMT: vehicle miles traveled
As: the acreage of the grading site (0.5 acres per grader)
Wb: blade width of the grader. CalEEMod default Wb = 12 ft.

**Proposed Project Onshore**

**Table 1.5 Onsite Table Fugitive Dust Emissions**

**C) Demolition (AP-42, p. 13.2.4-4)**

**Dust from Building Demolition**

| | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|
| | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Demolition | 0.00136 | 0.000206 | 1.03 | 0.156 | 0.134 | 0.020 |

Note:

Fugitive dust emissions from demolition are calculated using the following equations and parameters:

Emission factor (lb/ton) = (k)(0.0032)[(U/5)$^{1.3}$]/[(M/2)$^{1.4}$]

k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)

U = average wind speed = 2.6 m/s (5.816 mph) for San Diego (CalEEMOd default)

M = moisture content = 2% (CalEEMod Default for building debris)

| | | | |
|---|---|---|---|
| Total waste volume, Cubic Feet (entire phase): | 25,156,602 | CF | (provided by SCE on 1/31/2017) |
| Total waste weight, tons (entire phase): | 767,902 | tons | (provided by SCE on 1/31/2017) |
| % waste from building demolition | 100% | | (Conservatively assumed all wastes are from building demolition) |
| Total building demolition volume (entire phase): | 25,156,602 | CF | |
| Total building demolition weight (entire phase): | 767,902 | tons | |
| Worst-case year % of materials | 26% | | |
| Annual demolition (Worst-case year): | 197,103 | tons/year | |
| Number of working days | 260 | days/year | |
| Daily demolition | 758.1 | ton/day | |

**D) Building Debris**

**Dust from Building Debris Loading to Trains and Trucks**

| | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|
| | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Debris loading | 0.02030 | 0.003074 | 15.39 | 2.33 | 2.00 | 0.30 |

Note:

Fugitive dust from materials loading the trains and trucks are calculated using the following equations and parameters:

EF (lb/ton) = EF (TSP) X k

| | | | |
|---|---|---|---|
| EF(TSP) | 0.058 | lb/ton | (CalEEMod default for debris loading) |

k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)

| | | |
|---|---|---|
| Annual Debris (Worst-case year): | 197,103 | tons/year |
| Daily Debris | 758 | ton/day |

**Proposed Project Onshore**
**Table 1.5 Onsite Table Fugitive Dust Emissions**
**E) Other Earth Material Loading/Handling (AP-42, p. 13.2.4-3)**

**Dust from Backfill Unloading**

| | Material Amount | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|
| | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| | ton/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Material unloading | 194.5 | 50,567 | 0.00011 | 0.000017 | 0.02 | 0.003 | 0.003 | 0.0004 |

Note:
Fugitive dust from materials unloading from trains and/or trucks are calculated using the following equations and parameters:
Emission factor (lb/ton) = (k)(0.0032)[(U/5)$^{1.3}$]/[(M/2)$^{1.4}$]
k = Particle Size Constant (0.35 for PM10 and 0.53 for PM2.5)
U = average wind speed = 2.6 m/s (5.816 mph) for San Diego (CalEEMOd default)
M = moisture content = 12% (CalEEMod Default)

| Parameters | Material Unloading for backfill | Unit |
|---|---|---|
| Backfill materials to be unloaded from trains and/or trucks in 2023: | 1,081,081 | CF |
| Total earth materials to be loaded/unloaded (entire phase): | 40,000 | CY |
| Material density (CalEEMod default) | 1.264 | ton/CY |
| Materials to be loaded or unloaded (worst-case year): | 50,567 | tons/year |
| Number of working days | 260 | days/year |
| Daily tons loaded /unloaded | 194.5 | ton/day |

Note:
Material unloading for backfill: the backfill amount in 2023 was 40,000 cy, provided by SCE on 1/31/2017.

**Proposed Project Onshore**
**Table 1.5 Onsite Table Fugitive Dust Emissions**
**F) Unpaved Road Dust**

Emission factor (lb/VMT) = $(k)[(s/12)^{0.9}][(W/3)^{0.45}]$ (EPA AP-42, 13.2.2, for industrial sites)
k = constant (lb/VMT) = 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5
s = Silt Content (8.5%, construction sites, AP-42, Table 13.2.2.1)
W = avg. vehicle weight (tons) = 2.4 ton
No correction for number of wet days

**Uncontrolled Emission Factors and Emissions**

| | Emission Factors (lb/VMT) | | Emissions lbs/day | | Emissions ton/year | |
|---|---|---|---|---|---|---|
| | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Unpaved Road | 0.99 | 0.10 | 1.00 | 0.10 | 0.13 | 0.013 |

Note:
1. Annual miles on unpaved roads: 262 miles/year (provided by SCE on 10/18/2016)
2. Daily miles on unpaved roads: 1.01 miles/day
3. Working days 260 days/year
4. Worst-case fugitive emissions were assumed to occur in 2023.

**G) Dust from Concrete Debris Crushing**

| | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|
| | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Activity #5 Concrete Disposal: | 1500 | 255000 | 0.0024 | 0.0024 | 3.60 | 3.600 | 0.306 | 0.306 |

Note:
PM10 emission factors were obtained from EPA AP-42, Table 11.19.2-2, for tertiary Crushing. PM2.5 emission factor was assumed to be the same as PM10.
Number of days to crush the concrete: 170 days

**Summary of Onsite Fugitive Emissions**

| Activities | Emissions lbs/day | | Emissions ton/year | |
|---|---|---|---|---|
| | PM10 | PM2.5 | PM10 | PM2.5 |
| Bulldozing | 4.52 | 2.48 | 0.59 | 0.32 |
| Grading | 0.53 | 0.06 | 0.07 | 0.01 |
| Demolition | 1.03 | 0.16 | 0.13 | 0.02 |
| Debris Loading | 15.39 | 2.33 | 2.00 | 0.30 |
| Backfill Material Unloading | 0.02 | 0.00 | 0.00 | 0.000 |
| Unpaved Road | 1.00 | 0.10 | 0.13 | 0.01 |
| Concrete crushing | 3.60 | 3.60 | 0.31 | 0.31 |
| Total | 26.09 | 8.73 | 3.23 | 0.97 |

**Proposed Project Onshore**
**Table 1.6 Vehicle Fugitive Dust Emissions on Paved Roads**

Emission factor (g/VMT) = k X (sL)^0.91 X W^1.02

| | | PM10 | PM2.5 |
|---|---|---|---|
| k | | 1.0 | 0.25 |
| sL | g/m2 | 0.10 | 0.10 |
| W | tons | 2.4 | 2.4 |
| EF | (g/VMT) | 0.300 | 0.075 |

Equation from: AP-42 13.2.1
sL and W (silt loading and vehicle weight) are CalEEMod default values.

**Vehicle Fugitive Dust Emissions on Paved Roads**

| | | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|---|
| **Air Districts** | **Vehicles** | **Trip miles** | **PM10** | **PM2.5** | **Trip miles** | **PM10** | **PM2.5** |
| | | **VMT/day** | **lb/day** | **lb/day** | **VMT/year** | **ton/year** | **ton/year** |
| | Drayage Truck | 60 | 0.040 | 0.010 | 15,600 | 0.005 | 0.001 |
| | Staff Commuting | 0 | 0.000 | 0.000 | - | 0.000 | 0.000 |
| | Long-haul trucks - Route to South Coast | 82.5 | 0.055 | 0.014 | 21,428 | 0.007 | 0.002 |
| | Long-haul trucks - Route Victorville | 22.5 | 0.015 | 0.004 | 5,250 | 0.002 | 0.000 |
| | Long-haul trucks - Route La Paz, AZ | 240 | 0.159 | 0.040 | 60,930 | 0.020 | 0.005 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 8 | 0.005 | 0.001 | 705 | 0.000 | 0.000 |
| | Long-haul trucks - Route Andrews, TX | 252 | 0.167 | 0.042 | 6,045 | 0.002 | 0.001 |
| SDAPCD | **SDAPCD Total** | **664** | **0.440** | **0.110** | **109,958** | **0.036** | **0.009** |
| | Long-haul trucks - Route to South Coast | 1,458 | 0.965 | 0.241 | 378,553 | 0.125 | 0.031 |
| | Long-haul trucks - Route Victorville | 528 | 0.350 | 0.087 | 123,200 | 0.041 | 0.010 |
| | Long-haul trucks - Route La Paz, AZ | 13,472 | 8.924 | 2.231 | 3,420,204 | 1.133 | 0.283 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 176 | 0.117 | 0.029 | 16,544 | 0.005 | 0.001 |
| SCAQMD | **SCAQMD Total** | **15,634** | **10.356** | **2.589** | **3,938,501** | **1.304** | **0.326** |
| | Long-haul trucks - Route Victorville | 120 | 0.079 | 0.020 | 28,000 | 0.009 | 0.002 |
| | Long-haul trucks - Route La Paz, AZ | 1,920 | 1.272 | 0.318 | 487,440 | 0.161 | 0.040 |
| | Long-haul trucks - Route Clive, UT or Oak Ridge, TN | 414 | 0.274 | 0.069 | 38,916 | 0.013 | 0.003 |
| MDAQMD | **MDAQMD Total** | **2,334** | **1.546** | **0.387** | **526,356** | **0.174** | **0.044** |
| | Long-haul trucks - Route Andrews, TX | 188 | 0.124 | 0.031 | 4,501 | 0.001 | 0.000 |
| ICAPCD | **ICAPCD Total** | **188** | **0.124** | **0.031** | **4,501** | **0.001** | **0.000** |

Note:
For purposes of the air quality calculations, the in-state (CA) mileage and routes are based on the final destinations listed in the table. With regard to the assumptions for Clive, UT or Oak Ridge, TN, the listed data reflects mileage in the Mojave Air District to account for potential routing to Oak Ridge, TN, which would be the longer of the two potential haul routes. However, while the Oak Ridge, TN data are provided for bounding purposes, it is expected that Clive, UT would be the more likely destination for Class A waste, as described in Section 2.3.11 of the Project Description.

**Proposed Project Offshore**

**Table 2.1 Construction Emission Summary (including boat emissions within 3 miles offshore)**

**Emissions in San Diego Air Pollution Control District (SDAPCD), up to 3 miles offshore for boat emissions.**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Activities | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | Equipment | 2.25 | 18.54 | 14.89 | 0.05 | 0.70 | 0.68 | 5237.03 | 0.02 | 0.15 | 0.11 | 0.00 | 0.01 | 0.01 | 35.50 |
| | Vehicles | 0.04 | 0.69 | 0.21 | 0.01 | 0.04 | 0.02 | 572.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.45 |
| | Fugitive Dust | NA | NA | NA | NA | 0.12 | 0.03 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #1** | **2.28** | **19.23** | **15.10** | **0.06** | **0.86** | **0.72** | **5809.49** | **0.02** | **0.16** | **0.12** | **0.00** | **0.01** | **0.01** | **37.94** |
| Activity #2 Offshore Mobilization | Equipment | 2.66 | 23.38 | 21.11 | 0.06 | 0.99 | 0.92 | 5830.30 | 0.02 | 0.19 | 0.17 | 0.00 | 0.01 | 0.01 | 47.23 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | boats within 3 miles | 4.06 | 39.39 | 29.42 | 0.02 | 1.35 | 1.29 | 3681.78 | 0.01 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 10.05 |
| | **Subtotal Activity #2** | **6.72** | **62.77** | **50.53** | **0.08** | **2.34** | **2.20** | **9512.08** | **0.03** | **0.30** | **0.26** | **0.00** | **0.01** | **0.01** | **57.28** |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Equipment | 1.70 | 13.18 | 12.24 | 0.04 | 0.50 | 0.47 | 4146.78 | 0.08 | 0.63 | 0.58 | 0.00 | 0.02 | 0.02 | 196.97 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | boats within 3 miles | 1.79 | 17.81 | 14.14 | 0.00 | 0.59 | 0.59 | 1728.78 | 0.01 | 0.09 | 0.07 | 0.00 | 0.00 | 0.00 | 8.64 |
| | **Subtotal Activity #3** | **3.49** | **30.99** | **26.38** | **0.04** | **1.09** | **1.06** | **5875.56** | **0.09** | **0.72** | **0.65** | **0.00** | **0.03** | **0.03** | **205.62** |
| Activity #4 Demobilization | Equipment | 2.40 | 21.88 | 19.94 | 0.05 | 0.94 | 0.87 | 5228.30 | 0.02 | 0.19 | 0.17 | 0.00 | 0.01 | 0.01 | 44.22 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | boats within 3 miles | 4.06 | 39.39 | 29.42 | 0.02 | 1.35 | 1.29 | 3681.78 | 0.01 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 10.05 |
| | **Subtotal Activity #4** | **6.46** | **61.27** | **49.37** | **0.08** | **2.29** | **2.15** | **8910.08** | **0.03** | **0.29** | **0.25** | **0.00** | **0.01** | **0.01** | **54.27** |
| **Maximum Emissions in SDAPCD** | | **6.72** | **62.77** | **50.53** | **0.08** | **2.34** | **2.20** | **9512.08** | **0.17** | **1.46** | **1.27** | **0.00** | **0.06** | **0.05** | **355.11** |

Note:

1. Activities #1 through 5 do not overlap.

**Emissions in South Coast Air Quality Management District (SCAQMD), up to 3 miles offshore for boat emissions**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Activities | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.02 | 0.51 | 0.10 | 0.00 | 0.03 | 0.01 | 418.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.09 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats (all areas) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #1** | **0.02** | **0.51** | **0.10** | **0.00** | **0.03** | **0.01** | **418.61** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **2.09** |
| Activity #2 Offshore Mobilization | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.15 | 0.10 | 1.16 | 0.00 | 0.06 | 0.03 | 378.84 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 3.79 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats within 3 miles | 3.08 | 29.60 | 21.68 | 0.02 | 1.03 | 0.97 | 2737.83 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 3.54 |
| | **Subtotal Activity #2** | **3.23** | **29.70** | **22.83** | **0.03** | **1.09** | **1.00** | **3116.67** | **0.01** | **0.04** | **0.04** | **0.00** | **0.00** | **0.00** | **7.33** |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.15 | 0.10 | 1.16 | 0.00 | 0.06 | 0.03 | 378.84 | 0.01 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 17.99 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats within 3 miles | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 |
| | **Subtotal Activity #3** | **0.63** | **3.92** | **3.72** | **0.00** | **0.21** | **0.16** | **723.66** | **0.01** | **0.01** | **0.06** | **0.00** | **0.00** | **0.00** | **18.34** |
| Activity #4 Demobilization | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.15 | 0.10 | 1.16 | 0.00 | 0.06 | 0.03 | 378.84 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 3.79 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats within 3 miles | 3.29 | 30.71 | 22.07 | 0.02 | 1.09 | 1.01 | 2817.84 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 3.94 |
| | **Subtotal Activity #4** | **3.44** | **30.81** | **23.23** | **0.03** | **1.15** | **1.04** | **3196.68** | **0.01** | **0.04** | **0.04** | **0.00** | **0.00** | **0.00** | **7.73** |
| Activity #5 Concrete Disposal | Equipment | 2.94 | 22.04 | 20.23 | 0.08 | 0.82 | 0.76 | 7818.88 | 0.04 | 0.33 | 0.30 | 0.00 | 0.01 | 0.01 | 117.28 |
| | Vehicles | 0.28 | 5.30 | 1.80 | 0.04 | 0.32 | 0.13 | 4524.55 | 0.00 | 0.08 | 0.03 | 0.00 | 0.00 | 0.00 | 67.87 |
| | Fugitive Dust | NA | NA | NA | NA | 2.90 | 0.71 | NA | NA | NA | NA | NA | 0.07 | 0.01 | NA |
| | boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #5** | **3.22** | **27.34** | **22.03** | **0.13** | **4.04** | **1.60** | **12343.44** | **0.05** | **0.41** | **0.33** | **0.00** | **0.08** | **0.03** | **185.15** |
| **Maximum Emissions SCAQMD** | | **3.44** | **30.81** | **23.23** | **0.13** | **4.04** | **1.60** | **12343.44** | **0.07** | **0.50** | **0.47** | **0.00** | **0.09** | **0.03** | **220.64** |

Note:

1. Activities #1 through 5 do not overlap.

**Proposed Project Offshore**

**Table 2.1 Construction Emission Summary (including boat emissions within 3 miles offshore)**

**Emissions in Mojave Desert Air Quality Management District (MDAQMD)**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Activity | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #5 | Vehicles | 0.03 | 0.77 | 0.15 | 0.01 | 0.04 | 0.02 | 627.92 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 9.42 |
| Concrete Disposal | Subtotal Activity #5 | **0.03** | **0.77** | **0.15** | **0.01** | **0.04** | **0.02** | **627.92** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** | **9.42** |
| **Maximum Emissions MDAQMD** | | **0.03** | **0.77** | **0.15** | **0.01** | **0.04** | **0.02** | **627.92** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** | **9.42** |

Note:

1. Activities #1 through 5 do not overlap.

**Proposed Project Offshore**

**Table 2.2 Construction Emission Summary (including boat emissions at all distances offshore)**

**Emissions in San Diego Air Pollution Control District (SDAPCD), Including Boat Emissions All Distances Offshore**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Activity | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | Equipment | 2.25 | 18.54 | 14.89 | 0.05 | 0.70 | 0.68 | 5237.03 | 0.02 | 0.15 | 0.11 | 0.00 | 0.01 | 0.01 | 35.50 |
| | Vehicles | 0.04 | 0.69 | 0.21 | 0.01 | 0.04 | 0.02 | 572.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.45 |
| | Fugitive Dust | NA | NA | NA | NA | 0.12 | 0.03 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #1 | **2.28** | **19.23** | **15.10** | **0.06** | **0.86** | **0.72** | **5809.49** | **0.02** | **0.16** | **0.12** | **0.00** | **0.01** | **0.01** | **37.94** |
| Activity #2 Offshore Mobilization | Equipment | 2.66 | 23.38 | 21.11 | 0.06 | 0.99 | 0.92 | 5830.30 | 0.02 | 0.19 | 0.17 | 0.00 | 0.01 | 0.01 | 47.23 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | boats (all areas) | 6.33 | 60.97 | 44.71 | 0.04 | 2.11 | 1.98 | 5634.78 | 0.01 | 0.13 | 0.10 | 0.00 | 0.00 | 0.00 | 12.26 |
| | Subtotal Activity #2 | **8.99** | **84.35** | **65.81** | **0.10** | **3.10** | **2.90** | **11465.08** | **0.03** | **0.32** | **0.27** | **0.00** | **0.01** | **0.01** | **59.49** |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Equipment | 1.70 | 13.18 | 12.24 | 0.04 | 0.50 | 0.47 | 4146.78 | 0.08 | 0.63 | 0.58 | 0.00 | 0.02 | 0.02 | 196.97 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | boats (all areas) | 1.79 | 17.81 | 14.14 | 0.00 | 0.59 | 0.59 | 1728.78 | 0.01 | 0.09 | 0.07 | 0.00 | 0.00 | 0.00 | 8.64 |
| | Subtotal Activity #3 | **3.49** | **30.99** | **26.38** | **0.04** | **1.09** | **1.06** | **5875.56** | **0.09** | **0.72** | **0.65** | **0.00** | **0.03** | **0.03** | **205.62** |
| Activity #4 Demobilization | Equipment | 2.40 | 21.88 | 19.94 | 0.05 | 0.94 | 0.87 | 5228.30 | 0.02 | 0.19 | 0.17 | 0.00 | 0.01 | 0.01 | 44.22 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | boats (all areas) | 6.33 | 60.97 | 44.71 | 0.04 | 2.11 | 1.98 | 5634.78 | 0.01 | 0.13 | 0.10 | 0.00 | 0.00 | 0.00 | 12.26 |
| | Subtotal Activity #4 | **8.73** | **82.85** | **64.65** | **0.10** | **3.06** | **2.85** | **10863.08** | **0.03** | **0.31** | **0.27** | **0.00** | **0.01** | **0.01** | **56.48** |
| **Maximum Emissions in SDAPCD** | | **8.99** | **84.35** | **65.81** | **0.10** | **3.10** | **2.90** | **11465.08** | **0.18** | **1.51** | **1.31** | **0.00** | **0.06** | **0.05** | **359.54** |

Note:

1. Activities #1 through 5 do not overlap.

**Proposed Project Offshore**
**Table 2.2 Construction Emission Summary (including boat emissions at all distances offshore)**

**Emissions in South Coast Management District (SCAQMD), Including Boat Emissions in All Distances Offshore**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| Activity | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.02 | 0.51 | 0.10 | 0.00 | 0.03 | 0.01 | 418.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.09 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats (all distances) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #1 | **0.02** | **0.51** | **0.10** | **0.00** | **0.03** | **0.01** | **418.61** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **2.09** |
| Activity #2 Offshore Mobilization | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.15 | 0.10 | 1.16 | 0.00 | 0.06 | 0.03 | 378.84 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 3.79 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats (all distances) | 11.52 | 110.27 | 80.20 | 0.09 | 3.86 | 3.60 | 10156.90 | 0.01 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 10.18 |
| | Subtotal Activity #2 | **11.67** | **110.37** | **81.36** | **0.09** | **3.92** | **3.63** | **10535.74** | **0.01** | **0.11** | **0.09** | **0.00** | **0.00** | **0.00** | **13.96** |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.15 | 0.10 | 1.16 | 0.00 | 0.06 | 0.03 | 378.84 | 0.01 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 17.99 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats (all distances) | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 1.72 |
| | Subtotal Activity #3 | **0.63** | **3.92** | **3.72** | **0.00** | **0.21** | **0.16** | **723.66** | **0.01** | **0.02** | **0.07** | **0.00** | **0.00** | **0.00** | **19.72** |
| Activity #4 Demobilization | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.15 | 0.10 | 1.16 | 0.00 | 0.06 | 0.03 | 378.84 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 3.79 |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | boats (all distances) | 11.73 | 111.38 | 80.60 | 0.09 | 3.92 | 3.65 | 10236.91 | 0.01 | 0.12 | 0.08 | 0.00 | 0.00 | 0.00 | 10.58 |
| | Subtotal Activity #4 | **11.87** | **111.48** | **81.75** | **0.09** | **3.98** | **3.68** | **10615.75** | **0.01** | **0.12** | **0.09** | **0.00** | **0.00** | **0.00** | **14.36** |
| Activity #5 Concrete Disposal | Equipment | 2.94 | 22.04 | 20.23 | 0.08 | 0.82 | 0.76 | 7818.88 | 0.04 | 0.33 | 0.30 | 0.00 | 0.01 | 0.01 | 117.28 |
| | Vehicles | 0.28 | 5.30 | 1.80 | 0.04 | 0.32 | 0.13 | 4524.55 | 0.00 | 0.08 | 0.03 | 0.00 | 0.00 | 0.00 | 67.87 |
| | Fugitive Dust | NA | NA | NA | NA | 2.90 | 0.71 | NA | NA | NA | NA | NA | 0.07 | 0.01 | NA |
| | boats (all distances) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #5 | **3.22** | **27.34** | **22.03** | **0.13** | **4.04** | **1.60** | **12343.44** | **0.05** | **0.41** | **0.33** | **0.00** | **0.08** | **0.03** | **185.15** |
| **Maximum Emissions SCAQMD** | | **11.87** | **111.48** | **81.75** | **0.13** | **4.04** | **3.68** | **12343.44** | **0.08** | **0.66** | **0.58** | **0.00** | **0.10** | **0.04** | **235.29** |

Note:
1. Activities #1 through 5 do not overlap.

**Proposed Project Offshore**
**Table 2.3 Construction Equipment Emissions**

**Construction Equipment Information**

| Activity # | Offroad Equipment Name | Number of Equipment | per Equipment | | | Notes |
|---|---|---|---|---|---|---|
| | | | HP | Hours per Day | Number of Days | |
| Activity #1 Onshore Bulkhead Work | 100 Ton Crawler Crane | 1 | 300 | 8 | 12 | Onshore - SONGS Site |
| | 50 Ton Crawler Crane | 1 | 200 | 8 | 36 | Onshore - SONGS Site |
| | Concrete Saw | 1 | 10 | 8 | 3 | Onshore - SONGS Site |
| | Concrete Boom Pump | 1 | 350 | 8 | 3.6 | Onshore - SONGS Site |
| | Welding Set | 1 | 25 | 8 | 18 | Onshore - SONGS Site |
| | 60KW Generator | 1 | 85 | 8 | 18 | Onshore - SONGS Site |
| | 1200 CFM Compressor | 1 | 250 | 4 | 36 | Onshore - SONGS Site |
| Activity #2 Offshore Mobilization | Marine equipment | 1 | 300 | 10 | 10 | Offshore - SONGS Site |
| | Winch Motors | 4 | 50 | 2 | 10 | Offshore - SONGS Site |
| | 1200 CFM Compressor | 1 | 250 | 4 | 10 | Offshore - SONGS Site |
| | Welding Set | 1 | 10 | 4 | 10 | Offshore - SONGS Site |
| | 60KW Generator | 1 | 85 | 4 | 10 | Offshore - SONGS Site |
| | Long reach excavator - 96' | 1 | 400 | 4 | 10 | Offshore - SONGS Site |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 30 | Offshore - SONGS Site |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 30 | Onshore - SONGS Site |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 30 | Onshore - SONGS Site |
| | Derrick Barge - 200 Ton Crane | 1 | 300 | 10 | 10 | Onshore - SONGS Site |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | 1200 CFM Compressor | 1 | 250 | 6 | 95 | Offshore - SONGS Site |
| | 60KW Generator | 1 | 85 | 6 | 95 | Offshore - SONGS Site |
| | Long reach excavator - 96' | 1 | 400 | 6 | 95 | Offshore - SONGS Site |
| | 1200 CFM Compressor | 1 | 250 | 6 | 95 | Offshore - SONGS Site |
| | Derrick Barge - 200 Ton Crane | 1 | 300 | 10 | 95 | Offshore - SONGS Site |
| Activity #4 Demobilization | Welding Set | 1 | 10 | 4 | 10 | Offshore - SONGS Site |
| | 60KW Generator | 1 | 85 | 4 | 10 | Offshore - SONGS Site |
| | Long reach excavator - 96' | 1 | 400 | 4 | 10 | Offshore - SONGS Site |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 30 | Onshore - SONGS Site |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 30 | Onshore - SONGS Site |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 30 | Onshore - SONGS Site |
| | Winch Motors | 4 | 50 | 2 | 10 | Offshore - SONGS Site |
| | Marine equipment | 1 | 300 | 10 | 10 | Offshore - SONGS Site |
| | Derrick Barge - 200 Ton Crane | 1 | 300 | 10 | 10 | Offshore - SONGS Site |
| Activity #5 Concrete Disposal | 100 Ton Crawler Crane | 1 | 350 | 8 | 30 | Onshore - Port of Long Beach |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 30 | Onshore - Port of Long Beach |
| | Concrete Crusher | 1 | 225 | 8 | 30 | Onshore - Port of Long Beach |
| | Cat 966 Front End Loader | 1 | 250 | 8 | 30 | Onshore - Port of Long Beach |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 30 | Onshore - Port of Long Beach |
| | 20 Ton End Dump Truck | 2 | 320 | 8 | 30 | Onshore - Port of Long Beach |

Note:
1. Activities #1 through 5 do not overlap.
2. Equipment usage information is for the year of 2023. Data was provided by SCE on 3/2/2017.

**Proposed Project Offshore**
**Table 2.3 Construction Equipment Emissions**

**Equipment Information and Emission Factors**

| Activities | Equipment | Number of Equipment | per equipment HP | Hours per day | Days per year | Hours per Year | Emission Factor Year | CalEEMod Default Load | CalEEMod Emission Factors (100% load) ROG g/hp-hr | NOx g/hp-hr | CO g/hp-hr | SO2 g/hp-hr | PM10 g/hp-hr | PM2.5 g/hp-hr | CO2 g/hp-hr | CH4 g/hp-hr | CO2e g/hp-hr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Activity #1 Onshore Bulkhead Work | 100 Ton Crawler Crane | 1 | 300 | 8 | 12 | 96 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| | 50 Ton Crawler Crane | 1 | 200 | 8 | 36 | 288 | 2023 | 0.290 | 0.297 | 3.229 | 1.553 | 0.005 | 0.135 | 0.124 | 473.0 | 0.153 | 477.3 |
| | Concrete Saw | 1 | 10 | 8 | 3 | 24 | 2023 | 0.730 | 0.685 | 4.332 | 2.340 | 0.007 | 0.161 | 0.161 | 568.3 | 0.061 | 570.0 |
| | Concrete Boom Pump | 1 | 350 | 8 | 3.6 | 29 | 2023 | 0.740 | 0.171 | 1.246 | 0.998 | 0.005 | 0.038 | 0.038 | 568.3 | 0.015 | 568.7 |
| | Welding Set | 1 | 25 | 8 | 18 | 144 | 2023 | 0.450 | 0.728 | 4.447 | 2.407 | 0.007 | 0.186 | 0.186 | 568.3 | 0.065 | 570.1 |
| | 60KW Generator | 1 | 85 | 8 | 18 | 144 | 2023 | 0.740 | 0.279 | 2.477 | 3.347 | 0.006 | 0.117 | 0.117 | 568.3 | 0.025 | 569.0 |
| | 1200 CFM Compressor | 1 | 250 | 4 | 36 | 144 | 2023 | 0.480 | 0.243 | 1.420 | 1.099 | 0.006 | 0.045 | 0.045 | 568.3 | 0.021 | 568.9 |
| Activity #2 Offshore Mobilization | Marine equipment | 1 | 300 | 10 | 10 | 100 | 2023 | 0.420 | 0.180 | 1.812 | 1.396 | 0.005 | 0.069 | 0.063 | 476.2 | 0.154 | 480.5 |
| | Winch Motors | 4 | 50 | 2 | 10 | 80 | 2023 | 0.420 | 0.866 | 4.594 | 5.074 | 0.005 | 0.322 | 0.296 | 529.3 | 0.171 | 534.1 |
| | 1200 CFM Compressor | 1 | 250 | 4 | 10 | 40 | 2023 | 0.480 | 0.243 | 1.420 | 1.099 | 0.006 | 0.045 | 0.045 | 568.3 | 0.021 | 568.9 |
| | Welding Set | 1 | 10 | 4 | 10 | 40 | 2023 | 0.450 | 0.698 | 4.359 | 3.508 | 0.008 | 0.194 | 0.194 | 568.3 | 0.063 | 570.1 |
| | 60KW Generator | 1 | 85 | 4 | 10 | 40 | 2023 | 0.740 | 0.279 | 2.477 | 3.347 | 0.006 | 0.117 | 0.117 | 568.3 | 0.025 | 569.0 |
| | Long reach excavator - 96' | 1 | 400 | 4 | 10 | 40 | 2023 | 0.380 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.9 | 0.152 | 474.1 |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 30 | 240 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 30 | 240 | 2023 | 0.200 | 0.327 | 3.057 | 3.647 | 0.005 | 0.189 | 0.174 | 471.5 | 0.153 | 475.8 |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 30 | 240 | 2023 | 0.370 | 0.152 | 1.247 | 1.279 | 0.005 | 0.047 | 0.043 | 469.5 | 0.152 | 473.7 |
| | Derrick Barge - 200 Ton Crane | 1 | 300 | 10 | 10 | 100 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | 1200 CFM Compressor | 1 | 250 | 6 | 95 | 570 | 2023 | 0.480 | 0.243 | 1.420 | 1.099 | 0.006 | 0.045 | 0.045 | 568.3 | 0.021 | 568.9 |
| | 60KW Generator | 1 | 85 | 6 | 95 | 570 | 2023 | 0.740 | 0.279 | 2.477 | 3.347 | 0.006 | 0.117 | 0.117 | 568.3 | 0.025 | 569.0 |
| | Long reach excavator - 96' | 1 | 400 | 6 | 95 | 570 | 2023 | 0.380 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.9 | 0.152 | 474.1 |
| | 1200 CFM Compressor | 1 | 250 | 6 | 95 | 570 | 2023 | 0.480 | 0.243 | 1.420 | 1.099 | 0.006 | 0.045 | 0.045 | 568.3 | 0.021 | 568.9 |
| | Derrick Barge - 200 Ton Crane | 1 | 300 | 10 | 95 | 950 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| Activity #4 Demobilization | Welding Set | 1 | 10 | 4 | 10 | 40 | 2023 | 0.450 | 0.698 | 4.359 | 3.508 | 0.008 | 0.194 | 0.194 | 568.3 | 0.063 | 570.1 |
| | 60KW Generator | 1 | 85 | 4 | 10 | 40 | 2023 | 0.740 | 0.279 | 2.477 | 3.347 | 0.006 | 0.117 | 0.117 | 568.3 | 0.025 | 569.0 |
| | Long reach excavator - 96' | 1 | 400 | 4 | 10 | 40 | 2023 | 0.380 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.9 | 0.152 | 474.1 |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 30 | 240 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 30 | 240 | 2023 | 0.200 | 0.327 | 3.057 | 3.647 | 0.005 | 0.189 | 0.174 | 471.5 | 0.153 | 475.8 |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 30 | 240 | 2023 | 0.370 | 0.152 | 1.247 | 1.279 | 0.005 | 0.047 | 0.043 | 469.5 | 0.152 | 473.7 |
| | Winch Motors | 4 | 50 | 2 | 10 | 80 | 2023 | 0.420 | 0.866 | 4.594 | 5.074 | 0.005 | 0.322 | 0.296 | 529.3 | 0.171 | 534.1 |
| | Marine equipment | 1 | 300 | 10 | 10 | 100 | 2023 | 0.420 | 0.180 | 1.812 | 1.396 | 0.005 | 0.069 | 0.063 | 476.2 | 0.154 | 480.5 |
| | Derrick Barge - 200 Ton Crane | 1 | 300 | 10 | 10 | 100 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| Activity #5 Concrete Disposal | 100 Ton Crawler Crane | 1 | 350 | 8 | 30 | 240 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.3 | 0.153 | 476.6 |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 30 | 240 | 2023 | 0.200 | 0.327 | 3.057 | 3.647 | 0.005 | 0.189 | 0.174 | 471.5 | 0.153 | 475.8 |
| | Concrete Crusher | 1 | 225 | 8 | 30 | 240 | 2023 | 0.780 | 0.248 | 1.330 | 1.111 | 0.006 | 0.043 | 0.043 | 568.3 | 0.022 | 568.9 |
| | Cat 966 Front End Loader | 1 | 250 | 8 | 30 | 240 | 2023 | 0.370 | 0.169 | 1.588 | 1.148 | 0.005 | 0.058 | 0.053 | 469.8 | 0.152 | 474.0 |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 30 | 480 | 2023 | 0.380 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.9 | 0.152 | 474.1 |
| | 20 Ton End Dump Truck | 2 | 320 | 8 | 30 | 480 | 2023 | 0.380 | 0.187 | 1.324 | 1.221 | 0.005 | 0.048 | 0.044 | 475.0 | 0.154 | 479.4 |

Assumptions:
CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014)

CO2 1
CH4 28
N2O 265

Note:
1. Construction equipment information are provided by SCE (3/2/2017)
2. Load factor and emission factors are from CalEEMod Appendix D: Table 3.4 Offroad Equipment Emission Factors (g/hp-hr) and Table 3.3 OFFROAD Default Horsepower and Load Factors (October 2017)

**Proposed Project Offshore**
**Table 2.3 Construction Equipment Emissions**

**Construction Emissions - Offroad Equipment Emissions in San Diego Air Pollution Control District (SDAPCD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | 100 Ton Crawler Crane | 0.36 | 3.85 | 3.08 | 0.01 | 0.16 | 0.14 | 731.26 | 0.002 | 0.023 | 0.019 | 0.000 | 0.001 | 0.001 | 4.388 |
| | 50 Ton Crawler Crane | 0.30 | 3.30 | 1.59 | 0.01 | 0.14 | 0.13 | 488.20 | 0.005 | 0.059 | 0.029 | 0.000 | 0.002 | 0.002 | 8.788 |
| | Concrete Saw | 0.09 | 0.56 | 0.30 | 0.00 | 0.02 | 0.02 | 73.39 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.110 |
| | Concrete Boom Pump | 0.78 | 5.69 | 4.56 | 0.02 | 0.17 | 0.17 | 2597.86 | 0.001 | 0.010 | 0.008 | 0.000 | 0.000 | 0.000 | 4.676 |
| | Welding Set | 0.14 | 0.88 | 0.48 | 0.00 | 0.04 | 0.04 | 113.12 | 0.001 | 0.008 | 0.004 | 0.000 | 0.000 | 0.000 | 1.018 |
| | 60KW Generator | 0.31 | 2.75 | 3.71 | 0.01 | 0.13 | 0.13 | 631.22 | 0.003 | 0.025 | 0.033 | 0.000 | 0.001 | 0.001 | 5.681 |
| | 1200 CFM Compressor | 0.26 | 1.50 | 1.16 | 0.01 | 0.05 | 0.05 | 602.00 | 0.005 | 0.027 | 0.021 | 0.000 | 0.001 | 0.001 | 10.836 |
| | **Activity #1 sub-total** | **2.25** | **18.54** | **14.89** | **0.05** | **0.70** | **0.68** | **5237.03** | **0.02** | **0.15** | **0.11** | **0.00** | **0.01** | **0.01** | **35.50** |
| Activity #2 Offshore Mobilization | Marine equipment | 0.50 | 5.03 | 3.88 | 0.01 | 0.19 | 0.18 | 1334.71 | 0.003 | 0.025 | 0.019 | 0.000 | 0.001 | 0.001 | 6.674 |
| | Winch Motors | 0.32 | 1.70 | 1.88 | 0.00 | 0.12 | 0.11 | 197.82 | 0.002 | 0.009 | 0.009 | 0.000 | 0.001 | 0.001 | 0.989 |
| | 1200 CFM Compressor | 0.26 | 1.50 | 1.16 | 0.01 | 0.05 | 0.05 | 602.00 | 0.001 | 0.008 | 0.006 | 0.000 | 0.000 | 0.000 | 3.010 |
| | Welding Set | 0.03 | 0.17 | 0.14 | 0.00 | 0.01 | 0.01 | 22.62 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.113 |
| | 60KW Generator | 0.15 | 1.37 | 1.86 | 0.00 | 0.06 | 0.06 | 315.61 | 0.001 | 0.007 | 0.009 | 0.000 | 0.000 | 0.000 | 1.578 |
| | Long reach excavator - 96' | 0.16 | 1.20 | 1.41 | 0.01 | 0.04 | 0.04 | 635.54 | 0.001 | 0.006 | 0.007 | 0.000 | 0.000 | 0.000 | 3.178 |
| | 100 Ton Crawler Crane | 0.42 | 4.49 | 3.60 | 0.01 | 0.18 | 0.17 | 853.13 | 0.006 | 0.067 | 0.054 | 0.000 | 0.003 | 0.002 | 12.797 |
| | 50 Ton Fork Lift | 0.10 | 0.97 | 1.16 | 0.00 | 0.06 | 0.06 | 151.05 | 0.002 | 0.015 | 0.017 | 0.000 | 0.001 | 0.001 | 2.266 |
| | Cat 966 Front End Loader | 0.26 | 2.12 | 2.17 | 0.01 | 0.08 | 0.07 | 803.74 | 0.004 | 0.032 | 0.033 | 0.000 | 0.001 | 0.001 | 12.056 |
| | Derrick Barge - 200 Ton Crane | 0.45 | 4.82 | 3.86 | 0.01 | 0.20 | 0.18 | 914.07 | 0.002 | 0.024 | 0.019 | 0.000 | 0.001 | 0.001 | 4.570 |
| | **Activity #2 sub-total** | **2.66** | **23.38** | **21.11** | **0.06** | **0.99** | **0.92** | **5830.30** | **0.02** | **0.19** | **0.17** | **0.00** | **0.01** | **0.01** | **47.23** |
| Activity 3 Unit 2/3, Fish Return, and Buoy Disposition | 1200 CFM Compressor | 0.39 | 2.25 | 1.74 | 0.01 | 0.07 | 0.07 | 903.00 | 0.018 | 0.107 | 0.083 | 0.000 | 0.003 | 0.003 | 42.892 |
| | 60KW Generator | 0.23 | 2.06 | 2.78 | 0.00 | 0.10 | 0.10 | 473.41 | 0.011 | 0.098 | 0.132 | 0.000 | 0.005 | 0.005 | 22.487 |
| | Long reach excavator - 96' | 0.25 | 1.80 | 2.11 | 0.01 | 0.06 | 0.06 | 953.31 | 0.012 | 0.085 | 0.100 | 0.000 | 0.003 | 0.003 | 45.282 |
| | 1200 CFM Compressor | 0.39 | 2.25 | 1.74 | 0.01 | 0.07 | 0.07 | 903.00 | 0.018 | 0.107 | 0.083 | 0.000 | 0.003 | 0.003 | 42.892 |
| | Derrick Barge - 200 Ton Crane | 0.45 | 4.82 | 3.86 | 0.01 | 0.20 | 0.18 | 914.07 | 0.022 | 0.229 | 0.183 | 0.000 | 0.009 | 0.008 | 43.418 |
| | **Activity #3 sub-total** | **1.70** | **13.18** | **12.24** | **0.04** | **0.50** | **0.47** | **4146.78** | **0.08** | **0.63** | **0.58** | **0.00** | **0.02** | **0.02** | **196.97** |
| Activity #4 Demobilization: | Welding Set | 0.03 | 0.17 | 0.14 | 0.00 | 0.01 | 0.01 | 22.62 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.113 |
| | 60KW Generator | 0.15 | 1.37 | 1.86 | 0.00 | 0.06 | 0.06 | 315.61 | 0.001 | 0.007 | 0.009 | 0.000 | 0.000 | 0.000 | 1.578 |
| | Long reach excavator - 96' | 0.16 | 1.20 | 1.41 | 0.01 | 0.04 | 0.04 | 635.54 | 0.001 | 0.006 | 0.007 | 0.000 | 0.000 | 0.000 | 3.178 |
| | 100 Ton Crawler Crane | 0.42 | 4.49 | 3.60 | 0.01 | 0.18 | 0.17 | 853.13 | 0.006 | 0.067 | 0.054 | 0.000 | 0.003 | 0.002 | 12.797 |
| | 50 Ton Fork Lift | 0.10 | 0.97 | 1.16 | 0.00 | 0.06 | 0.06 | 151.05 | 0.002 | 0.015 | 0.017 | 0.000 | 0.001 | 0.001 | 2.266 |
| | Cat 966 Front End Loader | 0.26 | 2.12 | 2.17 | 0.01 | 0.08 | 0.07 | 803.74 | 0.004 | 0.032 | 0.033 | 0.000 | 0.001 | 0.001 | 12.056 |
| | Winch Motors | 0.32 | 1.70 | 1.88 | 0.00 | 0.12 | 0.11 | 197.82 | 0.002 | 0.009 | 0.009 | 0.000 | 0.001 | 0.001 | 0.989 |
| | Marine equipment | 0.50 | 5.03 | 3.88 | 0.01 | 0.19 | 0.18 | 1334.71 | 0.003 | 0.025 | 0.019 | 0.000 | 0.001 | 0.001 | 6.674 |
| | Derrick Barge - 200 Ton Crane | 0.45 | 4.82 | 3.86 | 0.01 | 0.20 | 0.18 | 914.07 | 0.002 | 0.024 | 0.019 | 0.000 | 0.001 | 0.001 | 4.570 |
| | **Activity #4 sub-total** | **2.40** | **21.88** | **19.94** | **0.05** | **0.94** | **0.87** | **5228.30** | **0.02** | **0.19** | **0.17** | **0.00** | **0.01** | **0.01** | **44.22** |
| **Maximum Equipment Emissions In SDAPCD** | | **2.66** | **23.38** | **21.11** | **0.06** | **0.99** | **0.92** | **5830.30** | **0.14** | **1.16** | **1.04** | **0.00** | **0.05** | **0.04** | **323.92** |

**Construction Emissions - Offroad Equipment Emissions in South Coast Air Quality Management District (SCAQMD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #5 Concrete Disposal | 100 Ton Crawler Crane | 0.42 | 4.49 | 3.60 | 0.01 | 0.18 | 0.17 | 853.13 | 0.006 | 0.067 | 0.054 | 0.000 | 0.003 | 0.002 | 12.797 |
| | 50 Ton Fork Lift | 0.10 | 0.97 | 1.16 | 0.00 | 0.06 | 0.06 | 151.05 | 0.002 | 0.015 | 0.017 | 0.000 | 0.001 | 0.001 | 2.266 |
| | Concrete Crusher | 0.77 | 4.12 | 3.44 | 0.02 | 0.13 | 0.13 | 1760.93 | 0.012 | 0.062 | 0.052 | 0.000 | 0.002 | 0.002 | 26.414 |
| | Cat 966 Front End Loader | 0.28 | 2.59 | 1.87 | 0.01 | 0.09 | 0.09 | 773.29 | 0.004 | 0.039 | 0.028 | 0.000 | 0.001 | 0.001 | 11.599 |
| | Excavator with Hoe Ram | 0.57 | 4.19 | 4.93 | 0.02 | 0.14 | 0.13 | 2224.38 | 0.009 | 0.063 | 0.074 | 0.000 | 0.002 | 0.002 | 33.366 |
| | 20 Ton End Dump Truck | 0.80 | 5.68 | 5.24 | 0.02 | 0.21 | 0.19 | 2056.09 | 0.012 | 0.085 | 0.079 | 0.000 | 0.003 | 0.003 | 30.841 |
| **Maximum Equipment Emissions In SCAQMD** | | **2.94** | **22.04** | **20.23** | **0.08** | **0.82** | **0.76** | **7818.88** | **0.04** | **0.33** | **0.30** | **0.00** | **0.01** | **0.01** | **117.28** |

**Proposed Project Offshore**
**Table 2.4 Construction Emissions - Vehicles**

**Vehicle Trip Information**

| Activities | Equipment Name | Vehicle Trips | | | Vehicle Miles Traveled | | Areas | Route Information |
|---|---|---|---|---|---|---|---|---|
| | | Number of trips per day | Number of days/activity | Trip distance (miles/trip) | Miles/day | Miles/year | | |
| Activity #1 Onshore Bulkhead Work | Worker Commute | 0 | 20 | 30 | 0 | 0 | SDAPCD | within SDAPCD |
| | Flatbed Truck - 5 Ton | 10 | 20 | 2 | 20 | 400 | SDAPCD | within SDAPCD |
| | Pickup Truck | 10 | 20 | 2 | 20 | 400 | SDAPCD | within SDAPCD |
| | Transport Truck - 40' | 1 | 4 | 100 | 100 | 400 | SDAPCD | within SDAPCD |
| | Dump Truck - 20 Ton | 2 | 20 | 10 | 20 | 400 | SDAPCD | within SDAPCD |
| | Low Bed Transport Truck | 2 | 10 | 60 | 120 | 1200 | SCAQMD | within SCAQMD, delivery of equipment to Port of Long Beach |
| | 20 Ton Ready Mix Truck | 2 | 6 | 10 | 20 | 120 | SDAPCD | within SDAPCD |
| Activity #2 Offshore Mobilization | Worker Commute | 20 | 20 | 30 | 600 | 12000 | SCAQMD | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Worker Commute | 20 | 95 | 30 | 600 | 57000 | SCAQMD | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #4 Demobilization | Worker Commute | 20 | 20 | 30 | 600 | 12000 | SCAQMD | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #5 Concrete Disposal | Worker Commute | 14 | 30 | 30 | 420 | 12600 | SCAQMD | within SCAQMD, travel to Port of Long Beach |
| | End Dump Truck | 3 | 30 | 407 | 1221 | 36630 | SCAQMD | within SCAQMD, route to La Paz, AZ |
| | End Dump Truck | 3 | 30 | 60 | 180 | 5400 | MDAQMD | within MDAQMD, route to La Paz, AZ |

Note:
1. Vehicle travel information provided by SCE on 3/2/2017 and 3/9/2017.
2. Activities #1 through 5 do not overlap.
3. Worker commute trips to SONGS site were set to zero because worker commute trips will not increase in comparison to baseline conditions (as of NOP).

**Vehicle Emission Factors**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Commuting Vehicles | 0.112 | 0.075 | 0.874 | 0.003 | 0.047 | 0.020 | 286.401 |
| pickup | 0.332 | 0.158 | 1.805 | 0.003 | 0.048 | 0.021 | 324.446 |
| Haul trucks | 0.065 | 1.943 | 0.368 | 0.015 | 0.104 | 0.041 | 1582.349 |

Note:
Vehicle emission factors were obtained from EMFAC2014:
Region: Statewide
Calendar year: 2023
Speed and model year: aggregated
Haul trucks: assumed to be heavy-heavy duty single unit diesel truck.
Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM10, emissions also include tire wear and brake wear.

**Proposed Project Offshore**
**Table 2.4 Construction Emissions - Vehicles**

**Vehicle Emissions - San Diego Air Pollution Control District (SDAPCD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | Flatbed Truck - 5 Ton | 20 | 400 | 0.003 | 0.086 | 0.016 | 0.001 | 0.005 | 0.002 | 69.77 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.70 |
| | Pickup Truck | 20 | 400 | 0.015 | 0.007 | 0.080 | 0.000 | 0.002 | 0.001 | 14.31 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.14 |
| | Transport Truck - 40' | 100 | 400 | 0.014 | 0.428 | 0.081 | 0.003 | 0.023 | 0.009 | 348.84 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.70 |
| | Dump Truck - 20 Ton | 20 | 400 | 0.003 | 0.086 | 0.016 | 0.001 | 0.005 | 0.002 | 69.77 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.70 |
| | 20 Ton Ready Mix Truck | 20 | 120 | 0.003 | 0.086 | 0.016 | 0.001 | 0.005 | 0.002 | 69.77 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.21 |
| | Activity #1 Sub-Total | | | 0.038 | 0.692 | 0.209 | 0.005 | 0.039 | 0.015 | 572.453 | 0.000 | 0.003 | 0.001 | 0.000 | 0.000 | 0.000 | 2.445 |
| Activity #2 Offshore Mobilization | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.000 | 0.000 | 0.000 | 0.0000 | 0.0000 | 0.0000 | 0.00 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| Activity #4 Demobilization | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| **Maximum Vehicle Emissions In SDAPCD** | | | | **0.038** | **0.69** | **0.21** | **0.01** | **0.04** | **0.02** | **572.45** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **2.45** |

**Vehicle Emissions - South Coast Air Quality Management District (SCAQMD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | Low Bed Transport Truck | 120 | 1200 | 0.017 | 0.514 | 0.097 | 0.004 | 0.027 | 0.011 | 418.611 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 2.093 |
| Activity #2 Offshore Mobilization | Worker Commute | 600 | 12000 | 0.148 | 0.099 | 1.156 | 0.004 | 0.062 | 0.026 | 378.838 | 0.001 | 0.001 | 0.012 | 0.000 | 0.001 | 0.000 | 3.8 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Worker Commute | 600 | 57000 | 0.148 | 0.099 | 1.156 | 0.004 | 0.062 | 0.026 | 378.838 | 0.007 | 0.005 | 0.055 | 0.000 | 0.003 | 0.001 | 18.0 |
| Activity #4 Demobilization | Worker Commute | 600 | 12000 | 0.148 | 0.099 | 1.156 | 0.004 | 0.062 | 0.026 | 378.838 | 0.001 | 0.001 | 0.012 | 0.000 | 0.001 | 0.000 | 3.8 |
| Activity #5 Concrete Disposal | Worker Commute | 420 | 12600 | 0.104 | 0.069 | 0.809 | 0.003 | 0.044 | 0.018 | 265.186 | 0.002 | 0.001 | 0.012 | 0.000 | 0.001 | 0.000 | 4.0 |
| | End Dump Truck | 1221 | 36630 | 0.176 | 5.231 | 0.991 | 0.041 | 0.279 | 0.110 | 4,259.366 | 0.003 | 0.078 | 0.015 | 0.001 | 0.004 | 0.002 | 63.9 |
| | Activity #5 Sub-Total | | | 0.280 | 5.300 | 1.800 | 0.043 | 0.322 | 0.129 | 4524.552 | 0.004 | 0.079 | 0.027 | 0.001 | 0.005 | 0.002 | 67.868 |
| **Maximum Vehicle Emissions In SCAQMD** | | | | **0.28** | **5.30** | **1.80** | **0.04** | **0.32** | **0.13** | **4524.55** | **0.01** | **0.09** | **0.11** | **0.00** | **0.01** | **0.00** | **95.53** |

**Vehicle Emissions -Mojave Desert Air Quality Management District (MDAQMD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #5 Concrete Disposal | End Dump Truck | 180 | 5400 | 0.026 | 0.771 | 0.146 | 0.006 | 0.041 | 0.016 | 627.916 | 0.000 | 0.012 | 0.002 | 0.000 | 0.001 | 0.000 | 9.419 |
| | Activity #5 Sub-Total | | | 0.026 | 0.771 | 0.146 | 0.006 | 0.041 | 0.016 | 627.916 | 0.000 | 0.012 | 0.002 | 0.000 | 0.001 | 0.000 | 9.419 |
| **Maximum Vehicle Emissions In MDAQMD** | | | | **0.026** | **0.771** | **0.146** | **0.006** | **0.041** | **0.016** | **627.92** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** | **9.42** |

**Proposed Project Offshore**
**Table 2.5a Boat Emissions**

**Derived Boat Emission Factors**

| Boat Type | Engine Type | VOC g/hp/hr | NOx g/hp/hr | CO g/hp/hr | SOx g/hp/hr | PM10 g/hp/hr | PM2.5 g/hp/hr | CO2e g/hp/hr |
|---|---|---|---|---|---|---|---|---|
| Crew Boat | Auxiliary | 0.4290 | 1.8232 | 1.5015 | 0.0000 | 0.1072 | 0.1072 | 160.7755 |
| | Propulsion | 0.2426 | 2.3869 | 1.5233 | 0.0000 | 0.0825 | 0.0728 | 216.4699 |
| Assist tugboat | Auxiliary | 0.2680 | 1.8393 | 1.6267 | 0.0000 | 0.0555 | 0.0462 | 204.9815 |
| | Propulsion | 0.1906 | 1.8753 | 1.2993 | 0.0021 | 0.0670 | 0.0618 | 166.2810 |
| Work boat/Push Boat | Auxiliary | 0.0000 | 0.9878 | 0.9878 | 0.0000 | 0.0000 | 0.0000 | 87.1080 |
| | Propulsion | 0.2050 | 1.7765 | 1.3666 | 0.0000 | 0.0683 | 0.0683 | 176.2432 |

Note:
1. Emission factors were derived using the 2016 Port of Long Beach Air Emissions Inventory (Starcrest, 2017).
2. Assist tugboat emission factors were used for estimating the emissions from the project tugboat.
3. Push boat used the same emission factors as the work boat emission factors derived from the Long Beach Air Emissions Inventory.

**Tugboat, Work Boat, Push Boat, and Crew Boat Operation Data**

| Activity | Boat Name | Per Boat | | | | Hours Within 3 miles offshore/per boat | | | | Total hours/boat | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Boats | Main Engine HP per boat | Auxiliary Engine HP per Boat | Max. Hours per day | Number of days | SDAPCD | | SCAQMD | | SDAPCD | | SCAQMD | | |
| | | | | | | | hours/day | hours/year | hours/day | hours/year | Hours/day | Hour/year | Hours/day | Hour/year | |
| Activity #2 Offshore Mobilization | Assist Tugboat | 1 | 2400 | 214 | 12 | 2 | 2 | 4 | 2 | 4 | 4 | 8 | 8 | 16 | Trip between Port of Long Beach and SONGS site |
| | Push Boat - Long Beach to SONGS | 1 | 600 | 140 | 12 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 8 | 8 | Trip from Port of Long Beach to SONGS site |
| | Push Boat -SONGS Site | 1 | 600 | 140 | 4 | 9 | 4 | 36 | 0 | 0 | 4 | 36 | 0 | 0 | Within SDAPCD |
| | Work Boat | 1 | 300 | 140 | 4 | 9 | 4 | 36 | 0 | 0 | 4 | 36 | 0 | 0 | Within SDAPCD |
| | Crew Boat | 1 | 200 | 55 | 4 | 10 | 1 | 10 | 3 | 30 | 1 | 10 | 3 | 30 | Worker commute trips between Dana Point and SONGS site |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Push Boat - SONGS site | 1 | 600 | 140 | 4 | 10 | 4 | 40 | 0 | 0 | 4 | 40 | 0 | 0 | Within SDAPCD |
| | Work Boat | 1 | 300 | 140 | 4 | 10 | 4 | 40 | 0 | 0 | 4 | 40 | 0 | 0 | Within SDAPCD |
| | Crew Boat | 1 | 200 | 55 | 4 | 10 | 1 | 10 | 3 | 30 | 1 | 10 | 3 | 30 | Worker commute trips between Dana Point and SONGS site |
| Activity #4 Demobilization | Assist Tugboat | 1 | 2400 | 214 | 12 | 2 | 2 | 4 | 2 | 4 | 4 | 8 | 8 | 16 | Trip between Port of Long Beach and SONGS site |
| | Push Boat - SONGS to Long Beach | 1 | 600 | 140 | 12 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 8 | 8 | Trip from SONGS to Long Beach |
| | Push Boat -SONGS Site | 1 | 600 | 140 | 4 | 9 | 4 | 36 | 0 | 0 | 4 | 36 | 0 | 0 | Within SDAPCD |
| | Work Boat | 1 | 300 | 140 | 4 | 9 | 4 | 36 | 0 | 0 | 4 | 36 | 0 | 0 | Within SDAPCD |
| | Crew Boat | 1 | 200 | 55 | 4 | 10 | 1 | 10 | 3 | 30 | 1 | 10 | 3 | 30 | Worker commute trips between Dana Point and SONGS site |

Note:
1. Number of boats and boat HP for Push Boat and Crew Boat were provided by SCE on 3/2/2017. Number of boats and boat HP for work boat were provided by SCE on 4/3/2017.
2. HP of Assist Tugboat was based on Connolly-Pacific engine information, provided by SCE on 11/28/2017.
3. HP of auxiliary engines of all boats used average HP of auxiliary engine for each corresponding boat types. Number of auxiliary engines were estimated based on the POLB inventory data.
4. Hours in each air district were provided by SCE.
5. Activities #1 through 5 do not overlap.
6. Push boat will travel from Long Beach at the beginning of Activity #2 and return to Long Beach at the end of Activity #4 (12-hour one way trip). Once arrived at SONGS, it will operate 4 hours per day.
7. Push boat emissions during travel from Long Beach to SONGS and from SONGS to Long Beach does not overlap with the push boat emissions that occur on SONGS site.
8. Work boat will only have emissions at the SONGS site. It will arrive and leave the site on the barge.

**Proposed Project Offshore**
**Table 2.5a Boat Emissions**

**Boat Emissions in San Diego Air Quality Management District (SDAPCD) (within 3 miles offshore)**

| Activity | | Number of Boats | Operating hours/boat | | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #2 Offshore Mobilization | Assist Tugboat | 1 | 2 | 2 | 2.27 | 21.58 | 15.28 | 0.02 | 0.76 | 0.70 | 1953.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 1.95 |
| | Push Boat - Long Beach to SONGS | 1 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 |
| | Push Boat -SONGS Site | 1 | 4 | 9 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 4.68 |
| | Work Boat | 1 | 4 | 9 | 0.54 | 5.92 | 4.83 | 0.00 | 0.18 | 0.18 | 573.79 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 2.58 |
| | Crew Boat | 1 | 1 | 10 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 |
| | Activity #2 Sub total | | | | 4.06 | 39.39 | 29.42 | 0.02 | 1.35 | 1.29 | 3681.78 | 0.01 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 10.05 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Push Boat - SONGS site | 1 | 4 | 10 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.01 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 5.20 |
| | Work Boat | 1 | 4 | 10 | 0.54 | 5.92 | 4.83 | 0.00 | 0.18 | 0.18 | 573.79 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 2.87 |
| | Crew Boat | 1 | 1 | 10 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 |
| | Activity #3 Sub total | | | | 1.79 | 17.81 | 14.14 | 0.00 | 0.59 | 0.59 | 1728.78 | 0.01 | 0.09 | 0.07 | 0.00 | 0.00 | 0.00 | 8.64 |
| Activity #4 Demobilization | Assist Tugboat | 1 | 2 | 2 | 2.27 | 21.58 | 15.28 | 0.02 | 0.76 | 0.70 | 1953.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 1.95 |
| | Push Boat - SONGS to Long Beach | 1 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 |
| | Push Boat -SONGS Site | 1 | 4 | 9 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 4.68 |
| | Work Boat | 1 | 4 | 9 | 0.54 | 5.92 | 4.83 | 0.00 | 0.18 | 0.18 | 573.79 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 2.58 |
| | Crew Boat | 1 | 1 | 10 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 |
| | Activity #4 Sub total | | | | 4.06 | 39.39 | 29.42 | 0.02 | 1.35 | 1.29 | 3681.78 | 0.01 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 10.05 |
| **Maximum Boat Emissions SDAPCD** | | | | | **4.06** | **39.39** | **29.42** | **0.02** | **1.35** | **1.29** | **3681.78** | **0.03** | **0.30** | **0.23** | **0.00** | **0.01** | **0.01** | **28.74** |

Note: It was assumed that the auxiliary engines will operate 100% of the main engine operating time.

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (within 3 miles offshore)**

| Activity | | Number of Boats | Operating hours/boat | | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #2 Offshore Mobilization | Assist Tugboat | 1 | 2 | 2 | 2.27 | 21.58 | 15.28 | 0.02 | 0.76 | 0.70 | 1953.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 1.95 |
| | Push Boat - Long Beach to SONGS | 1 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 |
| | Push Boat -SONGS Site | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Work Boat | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Crew Boat | 1 | 3 | 10 | 0.27 | 2.71 | 2.17 | 0.00 | 0.09 | 0.09 | 264.81 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 1.32 |
| | Activity #2 Sub total | | | | 3.08 | 29.60 | 21.68 | 0.02 | 1.03 | 0.97 | 2737.83 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 3.54 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Push Boat - SONGS site | 1 | 0 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Work Boat | 1 | 0 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Crew Boat | 1 | 3 | 2 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 |
| | Activity #3 Sub total | | | | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 |
| Activity #4 Demobilization | Assist Tugboat | 1 | 2 | 2 | 2.27 | 21.58 | 15.28 | 0.02 | 0.76 | 0.70 | 1953.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 1.95 |
| | Push Boat - SONGS to Long Beach | 1 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 |
| | Push Boat -SONGS Site | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Work Boat | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Crew Boat | 1 | 3 | 10 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 1.72 |
| | Activity #4 Sub total | | | | 3.29 | 30.71 | 22.07 | 0.02 | 1.09 | 1.01 | 2817.84 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 3.94 |
| **Maximum Boat Emissions SCAQMD** | | | | | **3.29** | **30.71** | **22.07** | **0.02** | **1.09** | **1.01** | **2817.84** | **0.01** | **0.08** | **0.06** | **0.00** | **0.00** | **0.00** | **7.82** |

Note: It was assumed that the auxiliary engines will operate 100% of the main engine operating time.

**Proposed Project Offshore**
**Table 2.5a Boat Emissions**

**Boat Emissions in San Diego Air Pollution Control District (SDAPCD) (all offshore emissions)**

| Activity | | Number of Boats | Operating hours/boat | | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #2 Offshore Mobilization | Assist Tugboat | 1 | 4 | 2 | 4.54 | 43.16 | 30.57 | 0.04 | 1.52 | 1.40 | 3906.00 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 3.91 |
| | Push Boat - Long Beach to SONGS | 1 | 4 | 1 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 |
| | Push Boat -SONGS Site | 1 | 4 | 9 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 4.68 |
| | Work Boat | 1 | 4 | 9 | 0.54 | 5.92 | 4.83 | 0.00 | 0.18 | 0.18 | 573.79 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 2.58 |
| | Crew Boat | 1 | 1 | 10 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 |
| | Activity #2 Sub total | | | | 6.33 | 60.97 | 44.71 | 0.04 | 2.11 | 1.98 | 5634.78 | 0.01 | 0.13 | 0.10 | 0.00 | 0.00 | 0.00 | 12.26 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Push Boat - SONGS site | 1 | 4 | 10 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.01 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 5.20 |
| | Work Boat | 1 | 4 | 10 | 0.54 | 5.92 | 4.83 | 0.00 | 0.18 | 0.18 | 573.79 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 2.87 |
| | Crew Boat | 1 | 1 | 10 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 |
| | Activity #3 Sub total | | | | 1.79 | 17.81 | 14.14 | 0.00 | 0.59 | 0.59 | 1728.78 | 0.01 | 0.09 | 0.07 | 0.00 | 0.00 | 0.00 | 8.64 |
| Activity #4 Demobilization | Assist Tugboat | 1 | 4 | 2 | 4.54 | 43.16 | 30.57 | 0.04 | 1.52 | 1.40 | 3906.00 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 3.91 |
| | Push Boat - SONGS to Long Beach | 1 | 4 | 1 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 |
| | Push Boat -SONGS Site | 1 | 4 | 9 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 4.68 |
| | Work Boat | 1 | 4 | 9 | 0.54 | 5.92 | 4.83 | 0.00 | 0.18 | 0.18 | 573.79 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 2.58 |
| | Crew Boat | 1 | 1 | 10 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 |
| | Activity #4 Sub total | | | | 6.33 | 60.97 | 44.71 | 0.04 | 2.11 | 1.98 | 5634.78 | 0.01 | 0.13 | 0.10 | 0.00 | 0.00 | 0.00 | 12.26 |
| **Maximum Boat Emissions SDAPCD** | | | | | **6.33** | **60.97** | **44.71** | **0.04** | **2.11** | **1.98** | **5634.78** | **0.04** | **0.35** | **0.27** | **0.00** | **0.01** | **0.01** | **33.17** |

Note: It was assumed that the auxiliary engines will operate 100% of the main engine operating time.

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (all offshore emission)**

| Activity | | Number of Boats | Operating hours/boat | | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e | VOC | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #2 Offshore Mobilization | Assist Tugboat | 1 | 8 | 2 | 9.08 | 86.32 | 61.14 | 0.09 | 3.04 | 2.79 | 7812.00 | 0.01 | 0.09 | 0.06 | 0.00 | 0.00 | 0.00 | 7.81 |
| | Push Boat - Long Beach to SONGS | 1 | 8 | 1 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 1.04 |
| | Push Boat -SONGS Site | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Work Boat | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Crew Boat | 1 | 3 | 10 | 0.27 | 2.71 | 2.17 | 0.00 | 0.09 | 0.09 | 264.81 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 1.32 |
| | Activity #2 Sub total | | | | 11.52 | 110.27 | 80.20 | 0.09 | 3.86 | 3.60 | 10156.90 | 0.01 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 10.18 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | Push Boat - SONGS site | 1 | 0 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Work Boat | 1 | 0 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Crew Boat | 1 | 3 | 10 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 1.72 |
| | Activity #3 Sub total | | | | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 1.72 |
| Activity #4 Demobilization | Assist Tugboat | 1 | 8 | 2 | 9.08 | 86.32 | 61.14 | 0.09 | 3.04 | 2.79 | 7812.00 | 0.01 | 0.09 | 0.06 | 0.00 | 0.00 | 0.00 | 7.81 |
| | Push Boat - SONGS to Long Beach | 1 | 8 | 1 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 1.04 |
| | Push Boat -SONGS Site | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Work Boat | 1 | 0 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Crew Boat | 1 | 3 | 10 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 1.72 |
| | Activity #4 Sub total | | | | 11.73 | 111.38 | 80.60 | 0.09 | 3.92 | 3.65 | 10236.91 | 0.01 | 0.12 | 0.08 | 0.00 | 0.00 | 0.00 | 10.58 |
| **Maximum Boat Emissions SCAQMD** | | | | | **11.73** | **111.38** | **80.60** | **0.09** | **3.92** | **3.65** | **10236.91** | **0.03** | **0.25** | **0.18** | **0.00** | **0.01** | **0.01** | **22.48** |

Note: It was assumed that the auxiliary engines will operate 100% of the main engine operating time.

**Proposed Project Offshore**
**Table 2.5b Boat Emissions**

**Boat Emission Factors Calculation**

| | | Port of Long Beach Harbor Craft Emissions by Vessel and Engine Type 2016 | | | | | | | | Port of Long Beach Vessels | | | | Derived Emission Factors | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Harbor Craft | Engine | PM10 | PM2.5 | DPM | NOx | SOx | CO | HC | CO2e | Number of vessels | Engine Count | Average HP per engine | Average operating hours per engine | PM10 | PM2.5 | DPM | NOx | SOx | CO | HC | CO2e |
| | Type | tons | tons | tons | tons | tons | tons | tons | metric tons | | | | | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr |
| Assist tugboat | Auxiliary | 0.6 | 0.5 | 0.6 | 19.9 | 0 | 17.6 | 2.9 | 2,012 | 15 | 30 | 208 | 1573 | 0.055 | 0.046 | 0.055 | 1.839 | 0.000 | 1.627 | 0.268 | 204.981 |
| | Propulsion | 6.5 | 6 | 6.5 | 182 | 0.2 | 126.1 | 18.5 | 14,640 | 15 | 31 | 2020 | 1406 | 0.067 | 0.062 | 0.067 | 1.875 | 0.002 | 1.299 | 0.191 | 166.281 |
| Crew Boat | Auxiliary | 0.1 | 0.1 | 0.1 | 1.7 | 0 | 1.4 | 0.4 | 136 | 17 | 20 | 55 | 769 | 0.107 | 0.107 | 0.107 | 1.823 | 0.000 | 1.501 | 0.429 | 160.776 |
| | Propulsion | 1.7 | 1.5 | 1.7 | 49.2 | 0 | 31.4 | 5 | 4,048 | 17 | 41 | 587 | 777 | 0.082 | 0.073 | 0.082 | 2.387 | 0.000 | 1.523 | 0.243 | 216.470 |
| Ocean tugboat | Auxiliary | 0.2 | 0.2 | 0.2 | 4.5 | 0 | 3.4 | 0.6 | 383 | 6 | 13 | 126 | 1061 | 0.104 | 0.104 | 0.104 | 2.349 | 0.000 | 1.775 | 0.313 | 220.379 |
| Total | Propulsion | 5.5 | 5 | 5.5 | 151.5 | 0.1 | 78.6 | 13.4 | 10,774 | 6 | 12 | 1837 | 1243 | 0.182 | 0.166 | 0.182 | 5.016 | 0.003 | 2.602 | 0.444 | 393.202 |
| Harbor | Auxiliary | 0 | 0 | 0 | 0.9 | 0 | 0.7 | 0.2 | 73 | 12 | 22 | 64 | 305 | 0.000 | 0.000 | 0.000 | 1.901 | 0.000 | 1.479 | 0.423 | 169.989 |
| tugboat | Propulsion | 0.4 | 0.3 | 0.4 | 12.2 | 0 | 9.5 | 1.3 | 1,065 | 12 | 25 | 799 | 409 | 0.044 | 0.033 | 0.044 | 1.355 | 0.000 | 1.055 | 0.144 | 130.359 |
| boat/Push | Auxiliary | 0 | 0 | 0 | 0.1 | 0 | 0.1 | 0 | 8 | 4 | 8 | 70 | 164 | 0.000 | 0.000 | 0.000 | 0.988 | 0.000 | 0.988 | 0.000 | 87.108 |
| Boat | Propulsion | 0.1 | 0.1 | 0.1 | 2.6 | 0 | 2 | 0.3 | 234 | 4 | 7 | 473 | 401 | 0.068 | 0.068 | 0.068 | 1.777 | 0.000 | 1.367 | 0.205 | 176.243 |

Note:
Harbor Craft emission data were from Table 3.1: 2016 Harbor Craft Emissions by Vessel and Engine Type, 2016 Port of Long Beach Air Emissions Inventory.
Harbor Craft engine data were from Table 3.4 and 3.5, Engine Characteristics by Harbor Craft Type, 2016 Port of Long Beach Air Emissions Inventory

**Proposed Project Offshore**
**Table 2.6 Fugitive Dust Emissions - Onsite**

**Dust Emissions in South Coast Air Quality Management District (SCAQMD)**

**Dust from Debris Loading/Unloading**

| Activity | Source | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| | | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| | Debris unloading from barge to contractor wharf | 80 | 2400 | 0.0203 | 0.0031 | 1.62 | 0.246 | 0.024 | 0.004 |
| Activity #5 Concrete Disposal: | Debris loading from contractor wharf to truck | 80 | 2400 | 0.0203 | 0.0031 | 1.62 | 0.246 | 0.024 | 0.004 |
| | Maximum Total | | | | | 1.62 | 0.25 | 0.049 | 0.007 |

Assumptions:
Fugitive dust from materials loading/unloading are calculated using the following equations and parameters
EF (lb/ton) = EF (TSP) X k
EF(TSP) 0.058 lb/ton (CalEEMod default for debris loading)
k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)
Annual Debris (Worst-case year): 2400 tons/year
Number of working days to unload materials 30 days
Daily Debris 80 ton/day
Note:
1. Amount of debris were from SONGS Decommissioning Project (Unit 2 and Unit 3 Offshore Conduits) Engineering Study for the Proposed Disposition (COWI, 2016)
2. Debris loading and unloading will not occur on the same day.

**Dust from Concrete Debris Crushing**

| Activity | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|
| | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Activity #5 Concrete Disposal: | 80 | 2400 | 0.0024 | 0.0024 | 0.19 | 0.192 | 0.003 | 0.003 |

Note:
PM10 emission factors were obtained from EPA AP-42, Table 11.19.2-2, for tertiary Crushing. PM2.5 emission factor was assumed to be the same as PM10.
Number of days to crush the concrete: 30 days

**Proposed Project Offshore**
**Table 2.7 Vehicle Fugitive Dust Emissions on Paved Roads**

Emission factor (g/VMT) = k X (sL)^0.91 X W^1.02

| | | PM10 | PM2.5 |
|---|---|---|---|
| k | | 1.0 | 0.25 |
| sL | g/m2 | 0.10 | 0.10 |
| W | tons | 2.4 | 2.4 |
| EF | (g/VMT) | 0.300 | 0.075 |

Equation from: AP-42 13.2.1
sL and W (silt loading and vehicle weight) are CalEEMod default values.

**Vehicle Fugitive Dust Emissions on Paved Roads**
**Emissions in San Diego Air Pollution District (SDAPCD)**

| Activities | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | 180 | 0.12 | 0.03 | 1,720 | 0.001 | 0.000 |
| Activity #2 Offshore Mobilization Offshore Mobilization | 0 | 0.00 | 0.00 | 0 | 0.000 | 0.000 |
| Activity #3 Unit 2/3, Fish Return, and Buoy Disposition | 0 | 0.00 | 0.00 | 0 | 0.000 | 0.000 |
| Activity #4 Demobilization | 0 | 0.00 | 0.00 | 0 | 0.000 | 0.000 |

**Emissions in South Coast Air Quality Management District (SCAQMD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work | 120 | 0.08 | 0.02 | 1200 | 0.0004 | 0.0001 |
| Activity #4 Demobilization | 1,641 | 1.09 | 0.27 | 49,230 | 0.016 | 0.004 |

**Emissions in Mojave Desert Air Quality Management District (MDAQMD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #5 Concrete Disposal | 180 | 0.12 | 0.03 | 5,400 | 0.002 | 0.000 |

# APPENDIX E2

Full Removal of Offshore Conduits Alternative
Air Pollutant and GHG Emissions

(Note: Emissions totals for this alternative include the emissions from the Proposed Project's Onshore Emissions Estimate in Appendix E1 plus the additional emissions estimates provided herein)

PAGE INTENTIONALLY LEFT BLANK

**Proposed Project Onshore and Offshore Full Removal of Conduits**

Criteria Pollutants

**Table S.1 Construction Emission Summary - San Diego Air Pollution Control District (SDAPCD)**

**Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 (boat emissions up to 3 miles offshore**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 15.33 | 127.35 | 99.81 | 0.34 | 31.65 | 13.53 | 1.77 | 13.78 | 12.14 | 0.04 | 3.85 | 1.52 |
| Offshore Full Removal of Conduits (up to 3 miles) | 34.43 | 304.81 | 247.65 | 0.35 | 10.24 | 9.84 | 2.56 | 23.52 | 19.66 | 0.03 | 0.80 | 0.78 |
| **Total Emissions** | **49.76** | **432.16** | **347.46** | **0.69** | **41.89** | **23.37** | **4.33** | **37.31** | **31.80** | **0.07** | **4.65** | **2.30** |

**Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 (boat emissions all distances offshore**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 15.33 | 127.35 | 99.81 | 0.34 | 31.65 | 13.53 | 1.77 | 13.78 | 12.14 | 0.04 | 3.85 | 1.52 |
| Offshore Full Removal of Conduits (all distances) | 40.60 | 347.21 | 273.04 | 0.35 | 11.52 | 10.90 | 2.71 | 24.56 | 20.28 | 0.03 | 0.83 | 0.81 |
| **Total Emissions** | **55.94** | **474.56** | **372.86** | **0.69** | **43.16** | **24.43** | **4.48** | **38.34** | **32.43** | **0.07** | **4.68** | **2.33** |

**Proposed Project Onshore and Offshore Full Removal of Conduits**

Criteria Pollutants

**Table S.2 Construction Emission Summary - South Coast Air Quality Management District (SCAQMD)**

**Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 (boat emissions all distances**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 3.57 | 101.96 | 23.78 | 0.56 | 14.72 | 4.77 | 0.35 | 10.17 | 2.15 | 0.07 | 1.79 | 0.54 |
| Offshore Full Removal of Conduits (up to 3 miles) | 11.76 | 109.10 | 61.12 | 0.38 | 21.32 | 7.04 | 0.58 | 6.16 | 3.36 | 0.03 | 2.25 | 0.59 |
| **Total Emissions** | **15.32** | **211.06** | **84.90** | **0.94** | **36.04** | **11.81** | **0.93** | **16.33** | **5.50** | **0.10** | **4.04** | **1.13** |

**Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 (boat emissions all distances offshore**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 3.57 | 101.96 | 23.78 | 0.56 | 14.72 | 4.77 | 0.35 | 10.17 | 2.15 | 0.07 | 1.79 | 0.54 |
| Offshore Full Removal of Conduits (all distances) | 30.29 | 236.29 | 137.31 | 0.38 | 25.15 | 10.24 | 1.03 | 9.28 | 5.22 | 0.03 | 2.34 | 0.67 |
| **Total Emissions** | **33.86** | **338.25** | **161.09** | **0.94** | **39.87** | **15.01** | **1.38** | **19.45** | **7.37** | **0.10** | **4.14** | **1.21** |

**Proposed Project Onshore and Offshore Full Removal of Conduits**
Criteria Pollutants
**Table S.3 Construction Emission Summary - Other Districts**

**Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 - Mojave Desert Air Quality Management District (MDAQMD)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 4.17 | 111.81 | 34.17 | 0.19 | 4.38 | 2.83 | 0.23 | 6.17 | 1.81 | 0.01 | 0.35 | 0.18 |
| Offshore Full Removal of Conduits (up to 3 miles) | 0.38 | 10.91 | 2.12 | 0.09 | 2.30 | 0.66 | 0.02 | 0.46 | 0.09 | 0.00 | 0.10 | 0.03 |
| **Total Emissions** | **4.54** | **122.72** | **36.29** | **0.28** | **6.68** | **3.49** | **0.24** | **6.62** | **1.90** | **0.02** | **0.44** | **0.21** |

**Notes:**

1. Worst-case daily and annual emissions for Offshore full removal of conduits would be in 2024 in MDAQMD while worst-case emissions for Proposed Project Onshore would be in 2023 in MDAQMD. To be conservative, the 2024 Offshore full removal of conduits emissions of MDAQMD were added to the 2023 Onshore Onshore emissions to represent the worst-case.

**Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 - Imperial County Air Quality Management District (ICAPCD)**

| | Maximum Daily Emissions | | | | | | Annual Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | ROG | NOx | CO | SO2 | PM10 | PM2.5 |
| Phases | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Proposed Project Onshore | 0.03 | 0.80 | 0.15 | 0.01 | 0.17 | 0.05 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Offshore Full Removal of Conduits (all distances) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Emissions** | **0.03** | **0.80** | **0.15** | **0.01** | **0.17** | **0.05** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** |

**Proposed Project Onshore and Offshore Full Removal of Conduits**
**Table S.4a Construction Emission Summary - Total GHG Emissions**

**Total GHG Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits (boat emissions up to 3 miles offshore)**

| | Activity Levels (%) | SDAPCD | SCAQMD | MDAQMD | ICAPCD | Total All Districts |
|---|---|---|---|---|---|---|
| | | CO2e | CO2e | CO2e | CO2e | CO2e |
| **Proposed Project Onshore** | | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year |
| 2019 | 1.3% | **179** ~~226~~ | 318 | 69 | 0 | **567** ~~613~~ |
| 2020 | 3.2% | **456** ~~574~~ | 808 | 175 | 1 | **1,440** ~~1,558~~ |
| 2021 | 21% | **2,948** ~~3,712~~ | 5,222 | 1,133 | 6 | **9,309** ~~10,072~~ |
| 2022 | 20% | **2,879** ~~3,625~~ | 5,099 | 1,106 | 6 | **9,090** ~~9,836~~ |
| 2023 | **26%** | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 | **11,453** ~~12,392~~ |
| 2024 | 23% | **3,205** ~~4,035~~ | 5,677 | 1,231 | 6 | **10,120** ~~10,950~~ |
| 2025 | 5.9% | **836** ~~1,053~~ | 1,481 | 321 | 2 | **2,641** ~~2,857~~ |
| **Offshore Full Removal of Conduits** | | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year |
| 2019 | NA | 0 | 0 | 0 | 0 | 0 |
| 2020 | NA | 0 | 0 | 0 | 0 | 0 |
| 2021 | NA | 0 | 0 | 0 | 0 | 0 |
| 2022 | NA | 181 | 56 | 0 | 0 | 236 |
| 2023 | NA | 3,938 | 2860 | 292 | 0 | 7,090 |
| 2024 | NA | 2,374 | 2495 | 340 | 0 | 5,208 |
| 2025 | NA | 251 | 47 | 0 | 0 | 298 |
| **Total GHG Emissions (up to 3 miles offshore)** | | **20,876** ~~**24,536**~~ | **30,488** | **6,061** | **28** | **57,452** ~~**61,112**~~ |
| **Amortized over 30 Years** | | **696** ~~**818**~~ | **1,016** | **202** | **1** | **1,915** ~~**2,037**~~ |

**Total GHG Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits (boat emissions all distances offshore)**

| | Activity Levels (%) | SDAPCD | SCAQMD | MDAQMD | ICAPCD | Total All Districts |
|---|---|---|---|---|---|---|
| | | CO2e | CO2e | CO2e | CO2e | CO2e |
| **Proposed Project Onshore** | | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year | Metric tons/year |
| 2019 | 1.3% | **179** ~~226~~ | 318 | 69 | 0 | **567** ~~613~~ |
| 2020 | 3.2% | **456** ~~574~~ | 808 | 175 | 1 | **1,440** ~~1,558~~ |
| 2021 | 21% | **2,948** ~~3,712~~ | 5,222 | 1,133 | 6 | **9,309** ~~10,072~~ |
| 2022 | 20% | **2,879** ~~3,625~~ | 5,099 | 1,106 | 6 | **9,090** ~~9,836~~ |
| 2023 | **26%** | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 | **11,453** ~~12,392~~ |
| 2024 | 23% | **3,205** ~~4,035~~ | 5,677 | 1,231 | 6 | **10,120** ~~10,950~~ |
| 2025 | 5.9% | **836** ~~1,053~~ | 1,481 | 321 | 2 | **2,641** ~~2,857~~ |
| **Offshore Full Removal of Conduits** | | | | | | |
| 2019 | NA | 0 | 0 | 0 | 0 | 0 |
| 2020 | NA | 0 | 0 | 0 | 0 | 0 |
| 2021 | NA | 0 | 0 | 0 | 0 | 0 |
| 2022 | NA | 204 | 127 | 0 | 0 | 332 |
| 2023 | NA | 4043 | 3175 | 292 | 0 | 7,510 |
| 2024 | NA | 2307 | 3171 | 340 | 0 | 5,817 |
| 2025 | NA | 271 | 163 | 0 | 0 | 434 |
| **Total GHG Emissions (all distance offshore)** | | **20,958** ~~**24,618**~~ | **31,666** | **6,061** | **28** | **58,713** ~~**62,373**~~ |
| **Amortized over 30 Years** | | **699** ~~**821**~~ | **1,056** | **202** | **1** | **1,957** ~~**2,079**~~ |

1 ton= 0.9072 metric ton

Note:

1. Proposed Project Onshore Activity Levels of each year were based on the percentages of waste generated during each year's activities.
2. GHG emissions of each year in Proposed Project Onshore were scaled based on the worst-case year GHG emissions and the activity level of 2023.

**Proposed Project Onshore and Offshore Full Removal of Conduits**
**Table S.4b Construction Emission Summary - Annual GHG Emissions**

**GHG Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 (boat emissions up to 3 miles offshore**

| Phases | SDAPCD CO2e ton/year | SCAQMD CO2e ton/year | MDAQMD CO2e ton/year | ICAPCD CO2e ton/year | SDAPCD CO2e metric ton/year | SCAQMD CO2e metric ton/year | MDAQMD CO2e metric ton/year | ICAPCD CO2e metric ton/year |
|---|---|---|---|---|---|---|---|---|
| Proposed Project Onshore | **3,999** ~~5,034~~ | 7,082 | 1,536 | 7.9 | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 |
| Offshore Full Removal of Conduits (up to 3 miles) | 4,340 | 3,152 | 374 | NA | 3,938 | 2,860 | 340 | NA |
| Worst-case Annual Emissions | **8,339** ~~9,375~~ | 10,234 | 1,910 | 7.9 | **7,565** ~~8,505~~ | 9,284 | 1,733 | 7 |
| 30-year Amortized Emissions | | | | | **696** ~~818~~ | 1,016 | 202 | 1 |

**GHG Emissions from Proposed Project Onshore and Offshore Full Removal of Conduits Overlapping Activities in 2023 (boat emissions all distances offshore**

| Phases | SDAPCD CO2e ton/year | SCAQMD CO2e ton/year | MDAQMD CO2e ton/year | ICAPCD CO2e ton/year | SDAPCD CO2e metric ton/year | SCAQMD CO2e metric ton/year | MDAQMD CO2e metric ton/year | ICAPCD CO2e metric ton/year |
|---|---|---|---|---|---|---|---|---|
| Proposed Project Onshore | **3,999** ~~5,034~~ | 7,082 | 1,536 | 8 | **3,627** ~~4,567~~ | 6,425 | 1,394 | 7 |
| Offshore Full Removal of Conduits (all distances) | 4,456 | 3,499 | 374 | NA | 4,043 | 3,175 | 340 | NA |
| Worst-case Annual Emissions | **8,455** ~~9,490~~ | 10,581 | 1,910 | 8 | **7,670** ~~8,610~~ | 9,599 | 1,733 | 7 |
| 30-year Amortized Emissions | | | | | **699** ~~821~~ | 1,056 | 202 | 1 |

Note:

1 ton= 0.9072 metric ton

3. Worst-case daily and annual emissions for Offshore Full Removal of Conduits would be in 2024 in MDAQMD while worst-case emissions for Proposed Project Onshore would be in 2023 in MDAQMD. To be conservative, the 2024 Offshore Full Removal of Conduits emissions of MDAQMD were added to the 2023 Onshore emissions to represent the worst-case.

**Offshore - Full Removal of Conduits**
**Table 2.0 Construction Schedule**

**2022 and 2023**

| | Proposed Major Activity | Sep-2022 | Oct-2022 | Nov-2022 | Dec-2022 | Jan-2023 | Feb-2023 | Mar-2023 | Apr-2023 | May-2023 | Jun-2023 | Jul-2023 | Aug-2023 | Sep-2023 | Oct-2023 | Nov-2023 | Dec-2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Activity #1 | Bulkhead Construction | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| Activity #2 | Project Mobilization (Land & Marine) | | | ■ | | | | | | | | | | | | | |
| Activity #3 | Trestle Material Supply | | | | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| Activity #4 | Mobilization and Deconstruction (U2 and U3) | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ |
| Activity #5 | Remove Unit 2 and Unit 3 Intake and Discharge Pipes | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Activity #6 | Preparation for Culvert Demolition | | | | | | | | | | | | | | | | |
| Activity #7 | Demolish RC Culverts & Backfill Trench | | | | | | | | | | | | | | | | |
| Activity #8 | Restore Seawall, Revetment Wall and Walkway | | | | | | | | | | | | | | | | |
| Activity #9 | Project Demobilization | | | | | | | | | | | | | | | | |
| Activity #10 | Concrete Disposal | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

**2024 and 2025**

| | Proposed Major Activity | Jan-2024 | Feb-2024 | Mar-2024 | Apr-2024 | May-2024 | Jun-2024 | Jul-2024 | Aug-2024 | Sep-2024 | Oct-2024 | Nov-2024 | Dec-2024 | Jan-2025 | Apr-2025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Activity #1 | Bulkhead Construction | | | | | | | | | | | | | | |
| Activity #2 | Project Mobilization (Land & Marine) | | | | | | | | | | | | | | |
| Activity #3 | Trestle Material Supply | | | | | | | | | | | | | | |
| Activity #4 | Mobilization and Deconstruction (U2 and U3) | | | | | | | | | | | ■ | ■ | ■ | |
| Activity #5 | Remove Unit 2 and Unit 3 Intake and Discharge Pipes | ■ | ■ | ■ | | | | | | | | | | | |
| Activity #6 | Preparation for Culvert Demolition | | | | ■ | ■ | ■ | | | | | | | | |
| Activity #7 | Demolish RC Culverts & Backfill Trench | | | | | | | ■ | ■ | | | | | | |
| Activity #8 | Restore Seawall, Revetment Wall and Walkway | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| Activity #9 | Project Demobilization | | | | | | | | | | | | | | ■ |
| Activity #10 | Concrete Disposal | ■ | ■ | ■ | ■ | | | | | ■ | ■ | | | | |

**Offshore - Full Removal of Conduits**

**Table 2.1 Construction Emission Summary by Year (including boat emissions within 3 miles offshore)**

**Emissions in San Diego Air Pollution Control District (SDAPCD), up to 3 miles offshore for boat emissions**

| | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| 2022 | 12.16 | 102.30 | 85.74 | 0.13 | 3.94 | 3.64 | 17517.01 | 0.14 | 1.20 | 0.98 | 0.00 | 0.05 | 0.04 | 199.05 |
| 2023 | 34.43 | 304.81 | 247.65 | 0.35 | 10.24 | 9.84 | 55473.82 | 2.56 | 23.52 | 19.66 | 0.03 | 0.80 | 0.78 | 4340.48 |
| 2024 | 23.93 | 210.69 | 178.04 | 0.28 | 6.90 | 6.72 | 41729.28 | 1.45 | 12.19 | 10.39 | 0.02 | 0.42 | 0.40 | 2616.40 |
| 2025 | 11.46 | 94.99 | 81.73 | 0.12 | 3.22 | 3.05 | 17842.13 | 0.19 | 1.59 | 1.35 | 0.00 | 0.06 | 0.05 | 277.21 |
| **Worst-Case** | **34.43** | **304.81** | **247.65** | **0.35** | **10.24** | **9.84** | **55473.82** | **2.56** | **23.52** | **19.66** | **0.03** | **0.80** | **0.78** | **4340.48** |

**Emissions in South Coast Air Quality Management District (SCAQMD), up to 3 miles offshore for boat emissions,**

| | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| 2022 | 4.10 | 31.27 | 25.45 | 0.02 | 1.81 | 1.00 | 5081.16 | 0.04 | 0.31 | 0.24 | 0.00 | 0.02 | 0.01 | 61.40 |
| 2023 | 11.76 | 109.10 | 61.12 | 0.38 | 21.32 | 7.04 | 44419.09 | 0.58 | 6.16 | 3.36 | 0.03 | 2.25 | 0.59 | 3152.15 |
| 2024 | 5.69 | 65.89 | 27.57 | 0.33 | 19.85 | 5.75 | 34419.44 | 0.27 | 4.21 | 1.40 | 0.03 | 2.01 | 0.49 | 2750.40 |
| 2025 | 4.36 | 30.78 | 20.89 | 0.00 | 1.51 | 1.00 | 3705.50 | 0.06 | 0.42 | 0.27 | 0.00 | 0.02 | 0.01 | 51.44 |
| **Worst-Case** | **11.76** | **109.10** | **61.12** | **0.38** | **21.32** | **7.04** | **44419.09** | **0.58** | **6.16** | **3.36** | **0.03** | **2.25** | **0.59** | **3152.15** |

**Emissions in Mojave Desert Air Quality Management District (MDAQMD), up to 3 miles offshore for boat emissions,**

| | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| 2022 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2023 | 0.17 | 5.14 | 0.97 | 0.04 | 1.07 | 0.31 | 4186.11 | 0.01 | 0.40 | 0.08 | 0.00 | 0.08 | 0.02 | 322.33 |
| 2024 | 0.38 | 10.91 | 2.12 | 0.09 | 2.30 | 0.66 | 8967.23 | 0.02 | 0.46 | 0.09 | 0.00 | 0.10 | 0.03 | 374.33 |
| 2025 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Worst-Case** | **0.38** | **10.91** | **2.12** | **0.09** | **2.30** | **0.66** | **8967.23** | **0.02** | **0.46** | **0.09** | **0.00** | **0.10** | **0.03** | **374.33** |

Note:

The worst-case daily and annual emissions would occur in 2023 in SDAPCD and SCAQMD.

The worst-case daily and annual emissions would occur in 2024 in MDAQMD.

**Offshore - Full Removal of Conduits**

**Table 2.2 Construction Emission Summary by Year (including boat emissions at all distances offshore)**

**Emissions in San Diego Air Pollution Control District (SDAPCD), (including boat emissions at all distances offshore)**

| | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| 2022 | 15.79 | 128.81 | 108.71 | 0.13 | 4.76 | 4.35 | 20399.56 | 0.17 | 1.43 | 1.19 | 0.00 | 0.05 | 0.05 | 225.30 |
| 2023 | 40.60 | 347.21 | 273.04 | 0.35 | 11.52 | 10.90 | 60198.88 | 2.71 | 24.56 | 20.28 | 0.03 | 0.83 | 0.81 | 4456.25 |
| 2024 | 27.02 | 231.89 | 190.74 | 0.28 | 7.54 | 7.25 | 44091.81 | 1.56 | 12.89 | 10.81 | 0.02 | 0.44 | 0.41 | 2543.11 |
| 2025 | 13.67 | 109.59 | 86.82 | 0.12 | 3.89 | 3.57 | 17842.13 | 0.22 | 1.79 | 1.47 | 0.00 | 0.06 | 0.06 | 298.73 |
| **Worst-Case** | **40.60** | **347.21** | **273.04** | **0.35** | **11.52** | **10.90** | **60198.88** | **2.71** | **24.56** | **20.28** | **0.03** | **0.83** | **0.81** | **4456.25** |

**Emissions in South Coast Air Quality Management District (SCAQMD), (including boat emissions at all distances offshore)**

| | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | 13.67 | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| 2022 | 15.00 | 110.79 | 94.37 | 0.02 | 4.27 | 3.14 | 13728.81 | 0.14 | 1.02 | 0.86 | 0.00 | 0.04 | 0.03 | 140.14 |
| 2023 | 30.29 | 236.29 | 137.31 | 0.38 | 25.15 | 10.24 | 58594.26 | 1.03 | 9.28 | 5.22 | 0.03 | 2.34 | 0.67 | 3499.45 |
| 2024 | 17.81 | 149.42 | 86.00 | 0.38 | 22.50 | 8.03 | 49027.83 | 0.77 | 7.63 | 4.00 | 0.03 | 2.12 | 0.58 | 3495.13 |
| 2025 | 15.25 | 110.30 | 71.66 | 0.00 | 3.97 | 3.14 | 12353.15 | 0.23 | 1.57 | 0.96 | 0.00 | 0.05 | 0.04 | 179.80 |
| **Worst-Case** | **30.29** | **236.29** | **137.31** | **0.38** | **25.15** | **10.24** | **58594.26** | **1.03** | **9.28** | **5.22** | **0.03** | **2.34** | **0.67** | **3499.45** |

**Emissions in Mojave Desert Air Quality Management District (MDAQMD), (including boat emissions at all distances offshore)**

| | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| 2022 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2023 | 0.17 | 5.14 | 0.97 | 0.04 | 1.07 | 0.31 | 4186.11 | 0.01 | 0.40 | 0.08 | 0.00 | 0.08 | 0.02 | 322.33 |
| 2024 | 0.38 | 10.91 | 2.12 | 0.09 | 2.30 | 0.66 | 8967.23 | 0.02 | 0.46 | 0.09 | 0.00 | 0.10 | 0.03 | 374.33 |
| 2025 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Worst-Case** | **0.38** | **10.91** | **2.12** | **0.09** | **2.30** | **0.66** | **8967.23** | **0.02** | **0.46** | **0.09** | **0.00** | **0.10** | **0.03** | **374.33** |

Note:

The worst-case daily and annual emissions would occur in 2023 in SDAPCD and SCAQMD.

The worst-case daily and annual emissions would occur in 2024 in MDAQMD.

**Offshore - Full Removal of Conduits**

**Table 2.3a Construction Emission Summary (including boat emissions within 3 miles offshore), 2022**

**Emissions in San Diego Air Pollution Control District (SDAPCD), up to 3 miles offshore for boat emissions, 2022**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | 2.45 | 21.33 | 15.84 | 0.05 | 0.82 | 0.80 | 5358.97 | 0.04 | 0.36 | 0.26 | 0.00 | 0.01 | 0.01 | 73.29 |
| | Vehicles | 0.02 | 0.23 | 0.11 | 0.00 | 0.01 | 0.00 | 105.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.91 |
| | Fugitive Dust | NA | NA | NA | NA | 0.03 | 0.01 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Activity #1 | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Onshore Bulkhead Work | Subtotal Activity #1 | **2.47** | **21.57** | **15.95** | **0.05** | **0.86** | **0.81** | **5464.92** | **0.04** | **0.36** | **0.26** | **0.00** | **0.01** | **0.01** | **74.20** |
| | Equipment | 3.70 | 30.32 | 27.88 | 0.07 | 1.42 | 1.33 | 6676.81 | 0.04 | 0.30 | 0.28 | 0.00 | 0.01 | 0.01 | 64.99 |
| | Vehicles | 0.05 | 0.57 | 0.21 | 0.00 | 0.02 | 0.01 | 215.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.59 |
| Activity #2 Project | Fugitive Dust | NA | NA | NA | NA | 0.05 | 0.01 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Mobilization (Land & | Boats within 3 miles | 5.94 | 49.84 | 41.69 | 0.00 | 1.59 | 1.48 | 5159.86 | 0.05 | 0.43 | 0.36 | 0.00 | 0.01 | 0.01 | 45.01 |
| Marine), (2022) | Subtotal Activity #2 | **9.69** | **80.73** | **69.78** | **0.07** | **3.08** | **2.83** | **12052.09** | **0.09** | **0.74** | **0.65** | **0.00** | **0.03** | **0.03** | **111.59** |
| | Equipment | 0.45 | 4.91 | 3.55 | 0.01 | 0.20 | 0.18 | 850.28 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 8.50 |
| | Vehicles | 0.01 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 7.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Activity #3 Trestle Material | Boats within 3 miles | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.01 | 0.04 | 0.04 | 0.00 | 0.00 | 0.00 | 4.73 |
| Supply (2022, 2023) | Subtotal Activity #3 | **3.55** | **26.11** | **22.35** | **0.01** | **0.84** | **0.72** | **3220.51** | **0.01** | **0.09** | **0.07** | **0.00** | **0.00** | **0.00** | **13.26** |
| 2022 Overlap Scenario 1 (Activity #1 and #2) | | 12.16 | 102.30 | 85.74 | 0.13 | 3.94 | 3.64 | 17517.01 | NA | NA | NA | NA | NA | NA | NA |
| 2022 Overlap Scenario 2 (Activity #1 and #3) | | 6.02 | 47.68 | 38.30 | 0.06 | 1.71 | 1.52 | 8685.43 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2022 (SDAPCD)** | | 12.16 | 102.30 | 85.74 | 0.13 | 3.94 | 3.64 | 17517.01 | 0.14 | 1.20 | 0.98 | 0.00 | 0.05 | 0.04 | 199.05 |

**Emissions in South Coast Air Quality Management District (SCAQMD), up to 3 miles offshore for boat emissions, 2022**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.03 | 1.02 | 0.11 | 0.00 | 0.03 | 0.01 | 415.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.41 |
| | Fugitive Dust | NA | NA | NA | NA | 0.08 | 0.02 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| Activity #1 | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Onshore Bulkhead Work | Subtotal Activity #1 | **0.03** | **1.02** | **0.11** | **0.00** | **0.11** | **0.03** | **415.28** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **1.41** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.44 | 3.74 | 2.36 | 0.02 | 0.18 | 0.08 | 1783.33 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 15.54 |
| Activity #2 Project | Fugitive Dust | NA | NA | NA | NA | 0.71 | 0.18 | NA | NA | NA | NA | NA | 0.01 | 0.00 | NA |
| Mobilization (Land & | Boats within 3 miles | 3.63 | 26.51 | 22.97 | 0.00 | 0.82 | 0.71 | 2882.55 | 0.03 | 0.19 | 0.17 | 0.00 | 0.01 | 0.00 | 21.52 |
| Marine), (2022) | Subtotal Activity #2 | **4.07** | **30.24** | **25.33** | **0.02** | **1.71** | **0.97** | **4665.89** | **0.03** | **0.22** | **0.19** | **0.00** | **0.01** | **0.01** | **37.06** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.17 | 4.04 | 0.84 | 0.02 | 0.12 | 0.06 | 1694.09 | 0.00 | 0.04 | 0.01 | 0.00 | 0.00 | 0.00 | 18.20 |
| | Fugitive Dust | NA | NA | NA | NA | 0.36 | 0.09 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| Activity #3 Trestle Material | Boats within 3 miles | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.01 | 0.04 | 0.04 | 0.00 | 0.00 | 0.00 | 4.73 |
| Supply (2022, 2023) | Subtotal Activity #3 | **3.26** | **25.24** | **19.59** | **0.02** | **1.12** | **0.68** | **4056.62** | **0.01** | **0.09** | **0.04** | **0.00** | **0.01** | **0.00** | **22.93** |
| 2022 Overlap Scenario 1 (Activity #1 and #2) | | 4.10 | 31.27 | 25.45 | 0.02 | 1.81 | 1.00 | 5081.16 | NA | NA | NA | NA | NA | NA | NA |
| 2022 Overlap Scenario 2 (Activity #1 and #3) | | 3.29 | 26.26 | 19.70 | 0.02 | 1.23 | 0.71 | 4471.90 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2022 (SCAQMD)** | | 4.10 | 31.27 | 25.45 | 0.02 | 1.81 | 1.00 | 5081.16 | 0.04 | 0.31 | 0.24 | 0.00 | 0.02 | 0.01 | 61.40 |

**Offshore - Full Removal of Conduits**

**Table 2.3b Construction Emission Summary (including boat emissions at all distances offshore), 2022**

**Emissions in San Diego Air Pollution Control District (SDAPCD), (including boat emissions at all distances offshore), 2021**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | 2.45 | 21.33 | 15.84 | 0.05 | 0.82 | 0.80 | 5358.97 | 0.04 | 0.36 | 0.26 | 0.00 | 0.01 | 0.01 | 73.29 |
| | Vehicles | 0.02 | 0.23 | 0.11 | 0.00 | 0.01 | 0.00 | 105.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.91 |
| | Fugitive Dust | NA | NA | NA | NA | 0.03 | 0.01 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Activity #1 | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Onshore Bulkhead Work | Subtotal Activity #1 | **2.47** | **21.57** | **15.95** | **0.05** | **0.86** | **0.81** | **5464.92** | **0.04** | **0.36** | **0.26** | **0.00** | **0.01** | **0.01** | **74.20** |
| | Equipment | 3.70 | 30.32 | 27.88 | 0.07 | 1.42 | 1.33 | 6676.81 | 0.04 | 0.30 | 0.28 | 0.00 | 0.01 | 0.01 | 64.99 |
| | Vehicles | 0.05 | 0.57 | 0.21 | 0.00 | 0.02 | 0.01 | 215.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.59 |
| Activity #2 Project | Fugitive Dust | NA | NA | NA | NA | 0.05 | 0.01 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Mobilization (Land & | Boats total | 9.57 | 76.34 | 64.67 | 0.00 | 2.41 | 2.20 | 8042.41 | 0.08 | 0.63 | 0.53 | 0.00 | 0.02 | 0.02 | 66.54 |
| Marine), (2022) | Subtotal Activity #2 | **13.32** | **107.24** | **92.76** | **0.07** | **3.90** | **3.54** | **14934.64** | **0.12** | **0.94** | **0.82** | **0.00** | **0.03** | **0.03** | **133.11** |
| | Equipment | 0.45 | 4.91 | 3.55 | 0.01 | 0.20 | 0.18 | 850.28 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 8.50 |
| | Vehicles | 0.01 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 7.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Activity #3 Trestle Material | Boats total | 6.18 | 42.40 | 37.50 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.01 | 0.08 | 0.07 | 0.00 | 0.00 | 0.00 | 9.45 |
| Supply (2022, 2023) | Subtotal Activity #3 | **6.64** | **47.31** | **41.09** | **0.01** | **1.48** | **1.25** | **5583.04** | **0.02** | **0.13** | **0.11** | **0.00** | **0.00** | **0.00** | **17.99** |
| 2022 Overlap Scenario 1 (Activity #1 and #2) | | 15.79 | 128.81 | 108.71 | 0.13 | 4.76 | 4.35 | 20399.56 | NA | NA | NA | NA | NA | NA | NA |
| 2022 Overlap Scenario 2 (Activity #1 and #3) | | 9.11 | 68.88 | 57.05 | 0.06 | 2.35 | 2.06 | 11047.96 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2022 (SDAPCD)** | | 15.79 | 128.81 | 108.71 | 0.13 | 4.76 | 4.35 | 20399.56 | 0.17 | 1.43 | 1.19 | 0.00 | 0.05 | 0.05 | 225.30 |

**Emissions in South Coast Air Quality Management District (SCAQMD), (including boat emissions at all distances offshore), 2022**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.03 | 1.02 | 0.11 | 0.00 | 0.03 | 0.01 | 415.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.41 |
| | Fugitive Dust | NA | NA | NA | NA | 0.08 | 0.02 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| Activity #1 | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Onshore Bulkhead Work | Subtotal Activity #1 | **0.03** | **1.02** | **0.11** | **0.00** | **0.11** | **0.03** | **415.28** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **1.41** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.44 | 3.74 | 2.36 | 0.02 | 0.18 | 0.08 | 1783.33 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 15.54 |
| Activity #2 Project | Fugitive Dust | NA | NA | NA | NA | 0.71 | 0.18 | NA | NA | NA | NA | NA | 0.01 | 0.00 | NA |
| Mobilization (Land & | Boats total | 14.53 | 106.03 | 91.89 | 0.00 | 3.28 | 2.85 | 11530.21 | 0.11 | 0.77 | 0.68 | 0.00 | 0.02 | 0.02 | 86.09 |
| Marine), (2022) | Subtotal Activity #2 | **14.97** | **109.77** | **94.25** | **0.02** | **4.17** | **3.11** | **13313.54** | **0.12** | **0.80** | **0.71** | **0.00** | **0.03** | **0.02** | **101.63** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.17 | 4.04 | 0.84 | 0.02 | 0.12 | 0.06 | 1694.09 | 0.00 | 0.04 | 0.01 | 0.00 | 0.00 | 0.00 | 18.20 |
| | Fugitive Dust | NA | NA | NA | NA | 0.36 | 0.09 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| Activity #3 Trestle Material | Boats total | 12.36 | 84.79 | 74.99 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.02 | 0.17 | 0.15 | 0.00 | 0.01 | 0.00 | 18.90 |
| Supply (2022, 2023) | Subtotal Activity #3 | **12.53** | **88.84** | **75.83** | **0.02** | **3.04** | **2.28** | **11144.21** | **0.03** | **0.21** | **0.16** | **0.00** | **0.01** | **0.01** | **37.10** |
| 2022 Overlap Scenario 1 (Activity #1 and #2) | | 15.00 | 110.79 | 94.37 | 0.02 | 4.27 | 3.14 | 13728.81 | NA | NA | NA | NA | NA | NA | NA |
| 2022 Overlap Scenario 2 (Activity #1 and #3) | | 12.56 | 89.86 | 75.94 | 0.02 | 3.14 | 2.31 | 11559.49 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2022 (SCAQMD)** | | 15.00 | 110.79 | 94.37 | 0.02 | 4.27 | 3.14 | 13728.81 | 0.14 | 1.02 | 0.86 | 0.00 | 0.04 | 0.03 | 140.14 |

**Offshore - Full Removal of Conduits**

**Table 2.4a Construction Emission Summary (including boat emissions within 3 miles offshore), 2023**

**Emissions in San Diego Air Pollution Control District (SDAPCD), up to 3 miles offshore for boat emissions, 2023**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | 0.41 | 4.17 | 3.24 | 0.01 | 0.17 | 0.15 | 850.44 | 0.02 | 0.17 | 0.13 | 0.00 | 0.01 | 0.01 | 34.02 |
| | Vehicles | 0.01 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 7.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Activity #3 Trestle Material | boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.02 | 0.15 | 0.09 | 0.00 | 0.00 | 0.00 | 16.54 |
| Supply (2022, 2023) | Subtotal Activity #3 | **3.50** | **25.37** | **15.98** | **0.01** | **0.81** | **0.69** | **3220.40** | **0.04** | **0.32** | **0.22** | **0.00** | **0.01** | **0.01** | **50.69** |
| Activity #4 Trestle | Equipment | 2.85 | 23.63 | 22.62 | 0.07 | 0.91 | 0.89 | 7074.49 | 0.31 | 2.60 | 2.49 | 0.01 | 0.10 | 0.10 | 778.19 |
| Construction, Crane | Vehicles | 0.01 | 0.03 | 0.05 | 0.00 | 0.00 | 0.00 | 25.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.10 |
| Mobilization and | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| Deconstruction (U2 and | boats within 3 miles | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.45 | 4.55 | 3.65 | 0.00 | 0.15 | 0.15 | 443.81 |
| U3) (2023, 2024, 2025) | Subtotal Activity #4 | **10.01** | **86.20** | **68.57** | **0.07** | **2.92** | **2.78** | **13497.19** | **0.76** | **7.15** | **6.14** | **0.01** | **0.25** | **0.25** | **1223.10** |
| | Equipment | 10.67 | 84.56 | 75.06 | 0.28 | 3.06 | 2.97 | 28453.54 | 0.78 | 6.22 | 5.52 | 0.02 | 0.22 | 0.22 | 2091.33 |
| Activity #5 Remove Unit 2 | Vehicles | 0.04 | 0.28 | 0.20 | 0.00 | 0.02 | 0.01 | 243.71 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 8.76 |
| and Unit 3 Intake and | Fugitive Dust | NA | NA | NA | NA | 0.07 | 0.02 | NA | NA | NA | NA | NA | 0.002 | 0.001 | NA |
| Discharge Pipes (2023, | boats within 3 miles | 13.71 | 133.77 | 103.83 | 0.00 | 4.17 | 4.06 | 13279.39 | 0.97 | 9.83 | 7.77 | 0.00 | 0.31 | 0.30 | 966.60 |
| 2024) | Subtotal Activity #5 | **24.42** | **218.61** | **179.08** | **0.28** | **7.32** | **7.06** | **41976.63** | **1.76** | **16.06** | **13.30** | **0.02** | **0.54** | **0.52** | **3066.70** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Activity #10 Concrete | boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Disposal (2023, 2024) | Subtotal Activity #10 | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| 2023 Overlap Scenario 1 (Activity #3 and #4) | | 13.51 | 111.57 | 84.55 | 0.08 | 3.74 | 3.47 | 16717.59 | NA | NA | NA | NA | NA | NA | NA |
| 2023 Overlap Scenario 2 (Activity #4, #5, and #10) | | 34.43 | 304.81 | 247.65 | 0.35 | 10.24 | 9.84 | 55473.82 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2023 (SDAPCD)** | | 34.43 | 304.81 | 247.65 | 0.35 | 10.24 | 9.84 | 55473.82 | 2.56 | 23.52 | 19.66 | 0.03 | 0.80 | 0.78 | 4340.48 |

**Emissions in South Coast Air Quality Management District (SCAQMD), up to 3 miles offshore for boat emissions 2023**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.13 | 1.96 | 0.72 | 0.02 | 0.11 | 0.04 | 1633.88 | 0.00 | 0.07 | 0.02 | 0.00 | 0.00 | 0.00 | 61.75 |
| | Fugitive Dust | NA | NA | NA | NA | 0.36 | 0.09 | NA | NA | NA | NA | NA | 0.013 | 0.003 | NA |
| Activity #3 Trestle Material | boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.02 | 0.15 | 0.09 | 0.00 | 0.00 | 0.00 | 16.54 |
| Supply (2022, 2023) | Subtotal Activity #3 | **3.22** | **23.16** | **13.42** | **0.02** | **1.11** | **0.67** | **3996.41** | **0.03** | **0.22** | **0.11** | **0.00** | **0.02** | **0.01** | **78.29** |
| Activity #4 Trestle | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Construction, Crane | Vehicles | 0.07 | 0.22 | 0.39 | 0.00 | 0.02 | 0.01 | 220.37 | 0.01 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 9.46 |
| Mobilization and | Fugitive Dust | NA | NA | NA | NA | 0.09 | 0.02 | NA | NA | NA | NA | NA | 0.006 | 0.001 | NA |
| Deconstruction (U2 and | boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| U3) (2023, 2024, 2025) | Subtotal Activity #4 | **3.16** | **21.42** | **13.09** | **0.00** | **0.75** | **0.56** | **2582.90** | **0.01** | **0.01** | **0.03** | **0.00** | **0.01** | **0.00** | **9.46** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Activity #5 Remove Unit 2 | Vehicles | 0.35 | 2.33 | 2.26 | 0.02 | 0.20 | 0.08 | 2273.73 | 0.02 | 0.09 | 0.13 | 0.00 | 0.01 | 0.00 | 99.76 |
| and Unit 3 Intake and | Fugitive Dust | NA | NA | NA | NA | 0.85 | 0.21 | NA | NA | NA | NA | NA | 0.047 | 0.012 | NA |
| Discharge Pipes (2023, | boats within 3 miles | 4.04 | 28.84 | 17.82 | 0.00 | 0.94 | 0.80 | 3052.17 | 0.20 | 1.49 | 0.94 | 0.00 | 0.05 | 0.04 | 153.36 |
| 2024) | Subtotal Activity #5 | **4.39** | **31.17** | **20.08** | **0.02** | **1.98** | **1.10** | **5325.90** | **0.22** | **1.58** | **1.07** | **0.00** | **0.11** | **0.06** | **253.12** |
| | Equipment | 2.93 | 21.57 | 20.53 | 0.08 | 0.80 | 0.75 | 7849.33 | 0.23 | 1.66 | 1.58 | 0.01 | 0.06 | 0.06 | 604.40 |
| | Vehicles | 1.28 | 34.94 | 7.42 | 0.27 | 1.90 | 0.75 | 28660.96 | 0.10 | 2.69 | 0.57 | 0.02 | 0.15 | 0.06 | 2206.89 |
| | Fugitive Dust | NA | NA | NA | NA | 15.89 | 3.88 | NA | NA | NA | NA | NA | 1.91 | 0.40 | NA |
| Activity #10 Concrete | boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Disposal (2023, 2024) | Subtotal Activity #10 | **4.20** | **56.51** | **27.95** | **0.36** | **18.59** | **5.38** | **36510.29** | **0.32** | **4.35** | **2.15** | **0.03** | **2.12** | **0.52** | **2811.29** |
| 2023 Overlap Scenario 1 (Activity #3 and #4) | | 6.38 | 44.58 | 26.51 | 0.02 | 1.86 | 1.23 | 6579.31 | NA | NA | NA | NA | NA | NA | NA |
| 2023 Overlap Scenario 2 (Activity #4, #5, and #10) | | 11.76 | 109.10 | 61.12 | 0.38 | 21.32 | 7.04 | 44419.09 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2023 (SCAQMD)** | | 11.76 | 109.10 | 61.12 | 0.38 | 21.32 | 7.04 | 44419.09 | 0.58 | 6.16 | 3.36 | 0.03 | 2.25 | 0.59 | 3152.15 |

**Offshore - Full Removal of Conduits**

**Table 2.4a Construction Emission Summary (including boat emissions within 3 miles offshore), 2023**

**Emissions in Mojave Desert Air Quality Management District (MDAQMD), up to 3 miles offshore for boat emissions 2023**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.17 | 5.14 | 0.97 | 0.04 | 0.27 | 0.11 | 4186.11 | 0.01 | 0.40 | 0.08 | 0.00 | 0.02 | 0.01 | 322.33 |
| | Fugitive Dust | NA | NA | NA | NA | 0.79 | 0.20 | NA | NA | NA | NA | NA | 0.061 | 0.015 | NA |
| Activity #10 Concrete | boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Disposal (2023, 2024) | Subtotal Activity #1 | **0.17** | **5.14** | **0.97** | **0.04** | **1.07** | **0.31** | **4186.11** | **0.01** | **0.40** | **0.08** | **0.00** | **0.08** | **0.02** | **322.33** |
| **Maximum Emissions 2023 (MDAQMD)** | | 0.17 | 5.14 | 0.97 | 0.04 | 1.07 | 0.31 | 4186.11 | 0.01 | 0.40 | 0.08 | 0.00 | 0.08 | 0.02 | 322.33 |

**Offshore - Full Removal of Conduits**

**Table 2.4b Construction Emission Summary (including boat emissions at all distances offshore), 2023**

**Emissions in San Diego Air Pollution Control District (SDAPCD), (including boat emissions at all distances offshore), 2023**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | 0.41 | 4.17 | 3.24 | 0.01 | 0.17 | 0.15 | 850.44 | 0.02 | 0.17 | 0.13 | 0.00 | 0.01 | 0.01 | 34.02 |
| | Vehicles | 0.01 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 7.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| Activity #3 Trestle Material | Boats total | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.04 | 0.30 | 0.18 | 0.00 | 0.01 | 0.01 | 33.08 |
| Supply (2022, 2023) | Subtotal Activity #3 | **6.59** | **46.57** | **28.68** | **0.01** | **1.45** | **1.22** | **5582.93** | **0.06** | **0.46** | **0.31** | **0.00** | **0.02** | **0.01** | **67.23** |
| Activity #4 Trestle | Equipment | 2.85 | 23.63 | 22.62 | 0.07 | 0.91 | 0.89 | 7074.49 | 0.31 | 2.60 | 2.49 | 0.01 | 0.10 | 0.10 | 778.19 |
| Construction, Crane | Vehicles | 0.01 | 0.03 | 0.05 | 0.00 | 0.00 | 0.00 | 25.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.10 |
| Mobilization and | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| Deconstruction (U2 and | Boats total | 10.25 | 83.74 | 58.61 | 0.00 | 2.63 | 2.42 | 8759.65 | 0.45 | 4.55 | 3.65 | 0.00 | 0.15 | 0.15 | 443.81 |
| U3) (2023, 2024, 2025) | Subtotal Activity #4 | **13.10** | **107.40** | **81.27** | **0.07** | **3.56** | **3.31** | **15859.72** | **0.76** | **7.15** | **6.14** | **0.01** | **0.25** | **0.25** | **1223.10** |
| | Equipment | 10.67 | 84.56 | 75.06 | 0.28 | 3.06 | 2.97 | 28453.54 | 0.78 | 6.22 | 5.52 | 0.02 | 0.22 | 0.22 | 2091.33 |
| Activity #5 Remove Unit 2 | Vehicles | 0.04 | 0.28 | 0.20 | 0.00 | 0.02 | 0.01 | 243.71 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 8.76 |
| and Unit 3 Intake and | Fugitive Dust | NA | NA | NA | NA | 0.07 | 0.02 | NA | NA | NA | NA | NA | 0.002 | 0.001 | NA |
| Discharge Pipes (2023, | Boats total | 16.80 | 154.97 | 116.52 | 0.00 | 4.81 | 4.59 | 15641.91 | 1.10 | 10.72 | 8.30 | 0.00 | 0.33 | 0.33 | 1065.83 |
| 2024) | Subtotal Activity #5 | **27.51** | **239.81** | **191.78** | **0.28** | **7.96** | **7.59** | **44339.16** | **1.89** | **16.95** | **13.83** | **0.02** | **0.56** | **0.54** | **3165.92** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Fugitive Dust | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Activity #10 Concrete | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Disposal (2023, 2024) | Subtotal Activity #10 | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| 2023 Overlap Scenario 1 (Activity #3 and #4) | | 19.69 | 153.97 | 109.95 | 0.08 | 5.01 | 4.53 | 21442.65 | NA | NA | NA | NA | NA | NA | NA |
| 2023 Overlap Scenario 2 (Activity #4, #5, and #10) | | 40.60 | 347.21 | 273.04 | 0.35 | 11.52 | 10.90 | 60198.88 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2023 (SDAPCD)** | | 40.60 | 347.21 | 273.04 | 0.35 | 11.52 | 10.90 | 60198.88 | 2.71 | 24.56 | 20.28 | 0.03 | 0.83 | 0.81 | 4456.25 |

**Emissions in South Coast Air Quality Management District (SCAQMD), (including boat emissions at all distances offshore), 2023**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.13 | 1.96 | 0.72 | 0.02 | 0.11 | 0.04 | 1633.88 | 0.00 | 0.07 | 0.02 | 0.00 | 0.00 | 0.00 | 61.75 |
| | Fugitive Dust | NA | NA | NA | NA | 0.36 | 0.09 | NA | NA | NA | NA | NA | 0.013 | 0.003 | NA |
| Activity #3 Trestle Material | Boats total | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.09 | 0.59 | 0.36 | 0.00 | 0.02 | 0.01 | 66.15 |
| Supply (2022, 2023) | Subtotal Activity #3 | **12.49** | **86.75** | **51.51** | **0.02** | **3.03** | **2.26** | **11084.00** | **0.09** | **0.67** | **0.38** | **0.00** | **0.03** | **0.02** | **127.90** |
| Activity #4 Trestle | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Construction, Crane | Vehicles | 0.07 | 0.22 | 0.39 | 0.00 | 0.02 | 0.01 | 220.37 | 0.01 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 9.46 |
| Mobilization and | Fugitive Dust | NA | NA | NA | NA | 0.09 | 0.02 | NA | NA | NA | NA | NA | 0.006 | 0.001 | NA |
| Deconstruction (U2 and | Boats total | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| U3) (2023, 2024, 2025) | Subtotal Activity #4 | **12.43** | **85.02** | **51.18** | **0.00** | **2.67** | **2.16** | **9670.49** | **0.01** | **0.01** | **0.03** | **0.00** | **0.01** | **0.00** | **9.46** |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Activity #5 Remove Unit 2 | Vehicles | 0.35 | 2.33 | 2.26 | 0.02 | 0.20 | 0.08 | 2273.73 | 0.02 | 0.09 | 0.13 | 0.00 | 0.01 | 0.00 | 99.76 |
| and Unit 3 Intake and | Fugitive Dust | NA | NA | NA | NA | 0.85 | 0.21 | NA | NA | NA | NA | NA | 0.047 | 0.012 | NA |
| Discharge Pipes (2023, | Boats total | 13.31 | 92.43 | 55.91 | 0.00 | 2.85 | 2.40 | 10139.76 | 0.59 | 4.16 | 2.54 | 0.00 | 0.13 | 0.11 | 451.04 |
| 2024) | Subtotal Activity #5 | **13.66** | **94.77** | **58.17** | **0.02** | **3.90** | **2.69** | **12413.49** | **0.61** | **4.25** | **2.67** | **0.00** | **0.19** | **0.13** | **550.80** |
| | Equipment | 2.93 | 21.57 | 20.53 | 0.08 | 0.80 | 0.75 | 7849.33 | 0.23 | 1.66 | 1.58 | 0.01 | 0.06 | 0.06 | 604.40 |
| | Vehicles | 1.28 | 34.94 | 7.42 | 0.27 | 1.90 | 0.75 | 28660.96 | 0.10 | 2.69 | 0.57 | 0.02 | 0.15 | 0.06 | 2206.89 |
| | Fugitive Dust | NA | NA | NA | NA | 15.89 | 3.88 | NA | NA | NA | NA | NA | 1.91 | 0.40 | NA |
| Activity #10 Concrete | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Disposal (2023, 2024) | Subtotal Activity #10 | **4.20** | **56.51** | **27.95** | **0.36** | **18.59** | **5.38** | **36510.29** | **0.32** | **4.35** | **2.15** | **0.03** | **2.12** | **0.52** | **2811.29** |
| 2023 Overlap Scenario 1 (Activity #3 and #4) | | 24.92 | 171.77 | 102.70 | 0.02 | 5.69 | 4.43 | 20754.48 | NA | NA | NA | NA | NA | NA | NA |
| 2023 Overlap Scenario 2 (Activity #4, #5, and #10) | | 30.29 | 236.29 | 137.31 | 0.38 | 25.15 | 10.24 | 58594.26 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2023 (SCAQMD)** | | 30.29 | 236.29 | 137.31 | 0.38 | 25.15 | 10.24 | 58594.26 | 1.03 | 9.28 | 5.22 | 0.03 | 2.34 | 0.67 | 3499.45 |

**Offshore - Full Removal of Conduits**

**Table 2.4b Construction Emission Summary (including boat emissions at all distances offshore), 2023**

**Emissions in Mojave Desert Air Quality Management District (MDAQMD), (including boat emissions at all distances offshore), 2023**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.17 | 5.14 | 0.97 | 0.04 | 0.27 | 0.11 | 4186.11 | 0.01 | 0.40 | 0.08 | 0.00 | 0.02 | 0.01 | 322.33 |
| | Fugitive Dust | NA | NA | NA | NA | 0.79 | 0.20 | NA | NA | NA | NA | NA | 0.061 | 0.015 | NA |
| Activity #10 Concrete | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Disposal (2023, 2024) | Subtotal Activity #1 | **0.17** | **5.14** | **0.97** | **0.04** | **1.07** | **0.31** | **4186.11** | **0.01** | **0.40** | **0.08** | **0.00** | **0.08** | **0.02** | **322.33** |
| **Maximum Emissions 2023 (MDAQMD)** | | 0.17 | 5.14 | 0.97 | 0.04 | 1.07 | 0.31 | 4186.11 | 0.01 | 0.40 | 0.08 | 0.00 | 0.08 | 0.02 | 322.33 |

**Offshore - Full Removal of Conduits**

**Table 2.5a Construction Emission Summary (including boat emissions within 3 miles offshore) 2024**

**Emissions in San Diego Air Pollution Control District (SDAPCD), up to 3 miles offshore for boat emissions, 2024**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | 2.72 | 21.71 | 22.36 | 0.07 | 0.81 | 0.79 | 7073.48 | 0.06 | 0.48 | 0.49 | 0.00 | 0.02 | 0.02 | 155.62 |
| | Vehicles | 0.01 | 0.03 | 0.04 | 0.00 | 0.00 | 0.00 | 25.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.09 | 0.91 | 0.73 | 0.00 | 0.03 | 0.03 | 88.76 |
| | **Subtotal Activity #4** | **9.88** | **84.28** | **68.31** | **0.07** | **2.82** | **2.68** | **13495.88** | **0.15** | **1.39** | **1.22** | **0.00** | **0.05** | **0.05** | **244.59** |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Equipment | 10.22 | 76.92 | 74.21 | 0.28 | 2.73 | 2.66 | 28449.90 | 0.32 | 2.42 | 2.34 | 0.01 | 0.09 | 0.08 | 896.17 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | 13.71 | 133.77 | 103.83 | 0.00 | 4.17 | 4.06 | 13279.39 | 0.38 | 3.84 | 3.03 | 0.00 | 0.12 | 0.12 | 377.30 |
| | **Subtotal Activity #5** | **23.93** | **210.69** | **178.04** | **0.28** | **6.90** | **6.72** | **41729.28** | **0.70** | **6.26** | **5.37** | **0.01** | **0.20** | **0.20** | **1273.47** |
| Activity #6 Preparation for Culvert Demolition (2024) | Equipment | 6.59 | 52.96 | 50.79 | 0.17 | 2.05 | 1.94 | 16642.62 | 0.16 | 1.32 | 1.27 | 0.00 | 0.05 | 0.05 | 416.07 |
| | Vehicles | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 21.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.05 | 0.32 | 0.19 | 0.00 | 0.01 | 0.01 | 35.44 |
| | **Subtotal Activity #6** | **9.69** | **74.19** | **63.51** | **0.17** | **2.70** | **2.47** | **19026.83** | **0.21** | **1.64** | **1.46** | **0.00** | **0.06** | **0.06** | **451.94** |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Equipment | 5.48 | 42.93 | 43.12 | 0.15 | 1.66 | 1.56 | 14000.69 | 0.10 | 0.80 | 0.81 | 0.00 | 0.03 | 0.03 | 264.96 |
| | Vehicles | 0.03 | 0.73 | 0.16 | 0.01 | 0.04 | 0.02 | 603.15 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 12.87 |
| | Fugitive Dust | NA | NA | NA | NA | 0.12 | 0.03 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| | Boats within 3 miles | 9.43 | 64.87 | 38.95 | 0.00 | 1.97 | 1.64 | 7202.53 | 0.20 | 1.36 | 0.82 | 0.00 | 0.04 | 0.03 | 151.25 |
| | **Subtotal Activity #7** | **14.93** | **108.53** | **82.23** | **0.15** | **3.78** | **3.25** | **21806.37** | **0.30** | **2.18** | **1.63** | **0.00** | **0.08** | **0.06** | **429.09** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | 1.83 | 14.47 | 14.25 | 0.05 | 0.56 | 0.53 | 4343.05 | 0.09 | 0.72 | 0.71 | 0.00 | 0.03 | 0.03 | 217.15 |
| | Vehicles | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 3.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | **0.00** | **0.00** | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #8** | **1.83** | **14.47** | **14.27** | **0.05** | **0.57** | **0.53** | **4346.65** | **0.09** | **0.72** | **0.71** | **0.00** | **0.03** | **0.03** | **217.32** |
| Activity #10 Concrete Disposal (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | **0.00** | **0.00** | NA | NA | NA | NA | NA | **0.00** | **0.00** | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #10** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| 2024 Overlap Scenario 1 (Activity #4 and #8) | | 11.71 | 98.74 | 82.58 | 0.12 | 3.39 | 3.22 | 17842.53 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 2 (Activity #5 and #10) | | 23.93 | 210.69 | 178.04 | 0.28 | 6.90 | 6.72 | 41729.28 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 3 (Activity #6 and #10) | | 9.69 | 74.19 | 63.51 | 0.17 | 2.70 | 2.47 | 19026.83 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 4 (Activity #7 and #8) | | 16.77 | 123.00 | 96.50 | 0.20 | 4.35 | 3.78 | 26153.02 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 5 (Activity #8 and #10) | | 1.83 | 14.47 | 14.27 | 0.05 | 0.57 | 0.53 | 4346.65 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2024 (SDAPCD)** | | **23.93** | **210.69** | **178.04** | **0.28** | **6.90** | **6.72** | **41729.28** | **1.45** | **12.19** | **10.39** | **0.02** | **0.42** | **0.40** | **2616.40** |

**Offshore - Full Removal of Conduits**

**Table 2.5a Construction Emission Summary (including boat emissions within 3 miles offshore) 2024**

**Emissions in South Coast Air Quality Management District (SCAQMD), up to 3 miles offshore for boat emissions 2024**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.07 | 0.22 | 0.36 | 0.00 | 0.02 | 0.01 | 217.75 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 1.85 |
| | Fugitive Dust | NA | NA | NA | NA | 0.09 | 0.02 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | Boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | **Subtotal Activity #4** | **3.16** | **21.42** | **13.06** | **0.00** | **0.75** | **0.56** | **2580.28** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **1.85** |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.37 | 2.57 | 2.31 | 0.02 | 0.21 | 0.09 | 2491.13 | 0.01 | 0.04 | 0.06 | 0.00 | 0.00 | 0.00 | 46.29 |
| | Fugitive Dust | NA | NA | NA | NA | 0.91 | 0.23 | NA | NA | NA | NA | NA | 0.021 | 0.005 | NA |
| | Boats within 3 miles | 4.04 | 28.84 | 17.82 | 0.00 | 0.94 | 0.80 | 3052.17 | 0.09 | 0.64 | 0.40 | 0.00 | 0.02 | 0.02 | 65.97 |
| | **Subtotal Activity #5** | **4.41** | **31.41** | **20.13** | **0.02** | **2.06** | **1.12** | **5543.30** | **0.10** | **0.68** | **0.46** | **0.00** | **0.05** | **0.03** | **112.26** |
| Activity #6 Preparation for Culvert Demolition (2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.03 | 0.24 | 0.17 | 0.00 | 0.02 | 0.01 | 214.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.29 |
| | Fugitive Dust | NA | NA | NA | NA | 0.06 | 0.01 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | Boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.05 | 0.32 | 0.19 | 0.00 | 0.01 | 0.01 | 35.44 |
| | **Subtotal Activity #6** | **3.12** | **21.44** | **12.87** | **0.00** | **0.71** | **0.55** | **2577.09** | **0.05** | **0.32** | **0.19** | **0.00** | **0.01** | **0.01** | **39.73** |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 1.58 | 41.05 | 9.20 | 0.33 | 2.27 | 0.90 | 34050.52 | 0.03 | 0.88 | 0.20 | 0.01 | 0.05 | 0.02 | 729.56 |
| | Fugitive Dust | NA | NA | NA | NA | 6.84 | 1.71 | NA | NA | NA | NA | NA | 0.15 | 0.04 | NA |
| | Boats within 3 miles | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.01 | 0.08 | 0.05 | 0.00 | 0.00 | 0.00 | 7.24 |
| | **Subtotal Activity #7** | **2.06** | **44.87** | **11.76** | **0.33** | **9.26** | **2.75** | **34395.34** | **0.04** | **0.96** | **0.25** | **0.01** | **0.20** | **0.06** | **736.80** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.02 | 0.01 | 0.13 | 0.00 | 0.00 | 0.00 | 24.10 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 1.11 |
| | Fugitive Dust | NA | NA | NA | NA | 0.02 | 0.01 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #8** | **0.02** | **0.01** | **0.13** | **0.00** | **0.03** | **0.01** | **24.10** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **1.11** |
| Activity #10 Concrete Disposal (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 1.28 | 34.48 | 7.45 | 0.27 | 1.90 | 0.75 | 28547.16 | 0.08 | 2.25 | 0.49 | 0.02 | 0.12 | 0.05 | 1858.65 |
| | Fugitive Dust | NA | NA | NA | NA | 15.89 | 3.88 | NA | NA | NA | NA | NA | 1.63 | 0.34 | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #10** | **1.28** | **34.48** | **7.45** | **0.27** | **17.78** | **4.63** | **28547.16** | **0.08** | **2.25** | **0.49** | **0.02** | **1.75** | **0.39** | **1858.65** |
| 2024 Overlap Scenario 1 (Activity #4 and #8) | | 3.18 | 21.43 | 13.19 | 0.00 | 0.77 | 0.57 | 2604.38 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 2 (Activity #5 and #10) | | 5.69 | 65.89 | 27.57 | 0.30 | 19.85 | 5.75 | 34090.46 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 3 (Activity #6 and #10) | | 4.40 | 55.93 | 20.32 | 0.27 | 18.50 | 5.19 | 31124.26 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 4 (Activity #7 and #8) | | 2.08 | 44.88 | 11.89 | 0.33 | 9.29 | 2.75 | 34419.44 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 5 (Activity #8 and #10) | | 1.31 | 34.50 | 7.57 | 0.27 | 17.81 | 4.64 | 28571.26 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2024 (SCAQMD)** | | 5.69 | 65.89 | 27.57 | 0.33 | 19.85 | 5.75 | 34419.44 | 0.27 | 4.21 | 1.40 | 0.03 | 2.01 | 0.49 | 2750.40 |

**Offshore - Full Removal of Conduits**

**Table 2.5a Construction Emission Summary (including boat emissions within 3 miles offshore) 2024**

**Emissions in Mojave Desert Air Quality Management District (MDAQMD), up to 3 miles offshore for boat emissions 2024**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.20 | 5.84 | 1.13 | 0.05 | 0.31 | 0.12 | 4796.42 | 0.00 | 0.13 | 0.02 | 0.00 | 0.01 | 0.003 | 102.81 |
| | Fugitive Dust | NA | NA | NA | NA | 0.91 | 0.23 | NA | NA | NA | NA | NA | 0.02 | 0.005 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #10 | 0.20 | 5.84 | 1.13 | 0.05 | 1.23 | 0.35 | 4796.42 | 0.00 | 0.13 | 0.02 | 0.00 | 0.03 | 0.01 | 102.81 |
| Activity #10 Concrete Disposal (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.17 | 5.07 | 0.99 | 0.04 | 0.27 | 0.11 | 4170.80 | 0.01 | 0.33 | 0.06 | 0.00 | 0.02 | 0.01 | 271.52 |
| | Fugitive Dust | NA | NA | NA | NA | 0.79 | 0.20 | NA | NA | NA | NA | NA | 0.052 | 0.01 | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #10 | 0.17 | 5.07 | 0.99 | 0.04 | 1.07 | 0.31 | 4170.80 | 0.01 | 0.33 | 0.06 | 0.00 | 0.07 | 0.02 | 271.52 |
| **Maximum Emissions 2024 (MDAQMD)** | | 0.38 | 10.91 | 2.12 | 0.09 | 2.30 | 0.66 | 8967.23 | 0.02 | 0.46 | 0.09 | 0.00 | 0.10 | 0.03 | 374.33 |

**Offshore - Full Removal of Conduits**

**Table 2.5b Construction Emission Summary (including boat emissions at all distances offshore), 2024**

**Emissions in San Diego Air Pollution Control District (SDAPCD), (including boat emissions at all distances offshore), 2024**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | 2.72 | 21.71 | 22.36 | 0.07 | 0.81 | 0.79 | 7073.48 | 0.06 | 0.48 | 0.49 | 0.00 | 0.02 | 0.02 | 155.62 |
| | Vehicles | 0.01 | 0.03 | 0.04 | 0.00 | 0.00 | 0.00 | 25.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | 10.25 | 83.74 | 58.61 | 0.00 | 2.63 | 2.42 | 8759.65 | 0.09 | 0.91 | 0.73 | 0.00 | 0.03 | 0.03 | 88.76 |
| | Subtotal Activity #4 | **12.97** | **105.47** | **81.01** | **0.07** | **3.46** | **3.22** | **15858.41** | **0.15** | **1.39** | **1.22** | **0.00** | **0.05** | **0.05** | **244.59** |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Equipment | 10.22 | 76.92 | 74.21 | 0.28 | 2.73 | 2.66 | 28449.90 | 0.32 | 2.42 | 2.34 | 0.01 | 0.09 | 0.08 | 896.17 |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | 16.80 | 154.97 | 116.52 | 0.00 | 4.81 | 4.59 | 15641.91 | 0.43 | 4.22 | 3.26 | 0.00 | 0.13 | 0.13 | 419.82 |
| | Subtotal Activity #5 | **27.02** | **231.89** | **190.74** | **0.28** | **7.54** | **7.25** | **44091.81** | **0.76** | **6.64** | **5.60** | **0.01** | **0.22** | **0.21** | **1315.99** |
| Activity #6 Preparation for Culvert Demolition (2024) | Equipment | 6.59 | 52.96 | 50.79 | 0.17 | 2.05 | 1.94 | 16642.62 | 0.16 | 1.32 | 1.27 | 0.00 | 0.05 | 0.05 | 416.07 |
| | Vehicles | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 21.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.09 | 0.64 | 0.38 | 0.00 | 0.02 | 0.02 | 70.88 |
| | Subtotal Activity #6 | **12.77** | **95.38** | **76.21** | **0.17** | **3.34** | **3.00** | **21389.35** | **0.26** | **1.96** | **1.65** | **0.00** | **0.07** | **0.06** | **487.37** |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Equipment | 5.48 | 42.93 | 43.12 | 0.15 | 1.66 | 1.56 | 14000.69 | 0.10 | 0.80 | 0.81 | 0.00 | 0.03 | 0.03 | 264.96 |
| | Vehicles | 0.03 | 0.73 | 0.16 | 0.01 | 0.04 | 0.02 | 603.15 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 12.87 |
| | Fugitive Dust | NA | NA | NA | NA | 0.12 | 0.03 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| | Boats total | 9.43 | 64.87 | 38.95 | 0.00 | 1.97 | 1.64 | 7202.53 | 0.20 | 1.36 | 0.82 | 0.00 | 0.04 | 0.03 | 0.00 |
| | Subtotal Activity #7 | **14.93** | **108.53** | **82.23** | **0.15** | **3.78** | **3.25** | **21806.37** | **0.30** | **2.18** | **1.63** | **0.00** | **0.08** | **0.06** | **277.83** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | 1.83 | 14.47 | 14.25 | 0.05 | 0.56 | 0.53 | 4343.05 | 0.09 | 0.72 | 0.71 | 0.00 | 0.03 | 0.03 | 217.15 |
| | Vehicles | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 3.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | **0.00** | **0.00** | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #8 | **1.83** | **14.47** | **14.27** | **0.05** | **0.57** | **0.53** | **4346.65** | **0.09** | **0.72** | **0.71** | **0.00** | **0.03** | **0.03** | **217.32** |
| Activity #10 Concrete Disposal (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #10 | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| 2024 Overlap Scenario 1 (Activity #4 and #8) | | 14.80 | 119.94 | 95.28 | 0.12 | 4.03 | 3.75 | 20205.06 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 2 (Activity #5 and #10) | | 27.02 | 231.89 | 190.74 | 0.28 | 7.54 | 7.25 | 44091.81 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 3 (Activity #6 and #10) | | 12.77 | 95.38 | 76.21 | 0.17 | 3.34 | 3.00 | 21389.35 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 4 (Activity #7 and #8) | | 16.77 | 123.00 | 96.50 | 0.20 | 4.35 | 3.78 | 26153.02 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 5 (Activity #8 and #10) | | 1.83 | 14.47 | 14.27 | 0.05 | 0.57 | 0.53 | 4346.65 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2024 (SDAPCD)** | | **27.02** | **231.89** | **190.74** | **0.28** | **7.54** | **7.25** | **44091.81** | **1.56** | **12.89** | **10.81** | **0.02** | **0.44** | **0.41** | **2543.11** |

**Offshore - Full Removal of Conduits**

**Table 2.5b Construction Emission Summary (including boat emissions at all distances offshore), 2024**

**Emissions in South Coast Air Quality Management District (SCAQMD), (including boat emissions at all distances offshore), 2024**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.07 | 0.22 | 0.36 | 0.00 | 0.02 | 0.01 | 217.75 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 1.85 |
| | Fugitive Dust | NA | NA | NA | NA | 0.09 | 0.02 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | Boats total | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Subtotal Activity #4 | **12.42** | **85.01** | **51.15** | **0.00** | **2.67** | **2.16** | **9667.87** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **1.85** |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.37 | 2.57 | 2.31 | 0.02 | 0.21 | 0.09 | 2491.13 | 0.01 | 0.04 | 0.06 | 0.00 | 0.00 | 0.00 | 46.29 |
| | Fugitive Dust | NA | NA | NA | NA | 0.91 | 0.23 | NA | NA | NA | NA | NA | 0.021 | 0.005 | NA |
| | Boats total | 13.31 | 92.43 | 55.91 | 0.00 | 2.85 | 2.40 | 10139.76 | 0.25 | 1.79 | 1.09 | 0.00 | 0.06 | 0.05 | 193.55 |
| | Subtotal Activity #5 | **13.68** | **95.00** | **58.22** | **0.02** | **3.98** | **2.72** | **12630.88** | **0.26** | **1.83** | **1.14** | **0.00** | **0.08** | **0.05** | **239.83** |
| Activity #6 Preparation for Culvert Demolition (2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.03 | 0.24 | 0.17 | 0.00 | 0.02 | 0.01 | 214.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.29 |
| | Fugitive Dust | NA | NA | NA | NA | 0.06 | 0.01 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | Boats total | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.19 | 1.27 | 0.76 | 0.00 | 0.04 | 0.03 | 141.75 |
| | Subtotal Activity #6 | **12.39** | **85.04** | **50.96** | **0.00** | **2.63** | **2.15** | **9664.68** | **0.19** | **1.28** | **0.77** | **0.00** | **0.04** | **0.03** | **146.04** |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 1.58 | 41.05 | 9.20 | 0.33 | 2.27 | 0.90 | 34050.52 | 0.03 | 0.88 | 0.20 | 0.01 | 0.05 | 0.02 | 729.56 |
| | Fugitive Dust | NA | NA | NA | NA | 6.84 | 1.71 | NA | NA | NA | NA | NA | 0.15 | 0.04 | NA |
| | Boats total | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.01 | 0.08 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Subtotal Activity #7 | **2.06** | **44.87** | **11.76** | **0.33** | **9.26** | **2.75** | **34395.34** | **0.04** | **0.96** | **0.25** | **0.01** | **0.20** | **0.06** | **729.56** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.02 | 0.01 | 0.13 | 0.00 | 0.00 | 0.00 | 24.10 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 1.11 |
| | Fugitive Dust | NA | NA | NA | NA | 0.02 | 0.01 | NA | NA | NA | NA | NA | 0.00 | 0.00 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #8 | **0.02** | **0.01** | **0.13** | **0.00** | **0.03** | **0.01** | **24.10** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **1.11** |
| Activity #10 Concrete Disposal (2023, 2024) | Equipment | 2.85 | 19.94 | 20.33 | 0.08 | 0.73 | 0.69 | 7849.78 | 0.19 | 1.32 | 1.34 | 0.01 | 0.05 | 0.05 | 518.09 |
| | Vehicles | 1.28 | 34.48 | 7.45 | 0.27 | 1.90 | 0.75 | 28547.16 | 0.08 | 2.25 | 0.49 | 0.02 | 0.12 | 0.05 | 1858.65 |
| | Fugitive Dust | NA | NA | NA | NA | 15.89 | 3.88 | NA | NA | NA | NA | NA | 1.63 | 0.34 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #10 | **4.13** | **54.42** | **27.77** | **0.35** | **18.52** | **5.32** | **36396.95** | **0.27** | **3.56** | **1.83** | **0.02** | **1.80** | **0.44** | **2376.74** |
| 2024 Overlap Scenario 1 (Activity #4 and #8) | | 12.45 | 85.02 | 51.28 | 0.00 | 2.69 | 2.17 | 9691.96 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 2 (Activity #5 and #10) | | 17.81 | 149.42 | 86.00 | 0.38 | 22.50 | 8.03 | 49027.83 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 3 (Activity #6 and #10) | | 16.52 | 139.46 | 78.74 | 0.36 | 21.15 | 7.47 | 46061.63 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 4 (Activity #7 and #8) | | 2.08 | 44.88 | 11.89 | 0.33 | 9.29 | 2.75 | 34419.44 | NA | NA | NA | NA | NA | NA | NA |
| 2024 Overlap Scenario 5 (Activity #8 and #10) | | 4.16 | 54.43 | 27.90 | 0.36 | 18.55 | 5.33 | 36421.05 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2024 (SCAQMD)** | | **17.81** | **149.42** | **86.00** | **0.38** | **22.50** | **8.03** | **49027.83** | **0.77** | **7.63** | **4.00** | **0.03** | **2.12** | **0.58** | **3495.13** |

**Offshore - Full Removal of Conduits**

**Table 2.5b Construction Emission Summary (including boat emissions at all distances offshore), 2024**

**Emissions in Mojave Desert Air Quality Management District (MDAQMD), (including boat emissions at all distances offshore), 2024**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.20 | 5.84 | 1.13 | 0.05 | 0.31 | 0.12 | 4796.42 | 0.00 | 0.13 | 0.02 | 0.00 | 0.01 | 0.00 | 102.81 |
| | Fugitive Dust | NA | NA | NA | NA | 0.91 | 0.23 | NA | NA | NA | NA | NA | 0.02 | 0.00 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #10 | 0.20 | 5.84 | 1.13 | 0.05 | 1.23 | 0.35 | 4796.42 | 0.00 | 0.13 | 0.02 | 0.00 | 0.03 | 0.01 | 102.81 |
| Activity #10 Concrete Disposal (2023, 2024) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.17 | 5.07 | 0.99 | 0.04 | 0.27 | 0.11 | 4170.80 | 0.01 | 0.33 | 0.06 | 0.00 | 0.02 | 0.01 | 271.52 |
| | Fugitive Dust | NA | NA | NA | NA | 0.79 | 0.20 | NA | NA | NA | NA | NA | 0.052 | 0.013 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Subtotal Activity #10 | 0.17 | 5.07 | 0.99 | 0.04 | 1.07 | 0.31 | 4170.80 | 0.01 | 0.33 | 0.06 | 0.00 | 0.07 | 0.02 | 271.52 |
| **Maximum Emissions 2024 (MDAQMD)** | | 0.38 | 10.91 | 2.12 | 0.09 | 2.30 | 0.66 | 8967.23 | 0.02 | 0.46 | 0.09 | 0.00 | 0.10 | 0.03 | 374.33 |

**Offshore - Full Removal of Conduits**
**Table 2.6a Construction Emission Summary (including boat emissions within 3 miles offshore)**

**Emissions in San Diego Air Pollution Control District (SDAPCD), up to 3 miles offshore for boat emissions, 2025**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | 2.57 | 19.62 | 22.05 | 0.07 | 0.71 | 0.69 | 7072.96 | 0.03 | 0.22 | 0.24 | 0.00 | 0.01 | 0.01 | 77.80 |
| | Vehicles | 0.01 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 24.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.07 | 0.65 | 0.48 | 0.00 | 0.02 | 0.02 | 65.64 |
| | **Subtotal Activity #4** | **9.73** | **82.19** | **68.00** | **0.07** | **2.72** | **2.58** | **13495.03** | **0.10** | **0.86** | **0.72** | **0.00** | **0.03** | **0.03** | **143.56** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | 1.72 | 12.80 | 13.71 | 0.05 | 0.49 | 0.46 | 4343.63 | 0.02 | 0.13 | 0.14 | 0.00 | 0.00 | 0.00 | 43.44 |
| | Vehicles | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 3.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #8** | **1.73** | **12.80** | **13.73** | **0.05** | **0.50** | **0.46** | **4347.10** | **0.02** | **0.13** | **0.14** | **0.00** | **0.00** | **0.00** | **43.47** |
| Activity #9 Project Demobilization (2025) | Equipment | 3.52 | 27.80 | 30.04 | 0.07 | 1.29 | 1.19 | 6605.48 | 0.02 | 0.17 | 0.19 | 0.00 | 0.01 | 0.01 | 45.33 |
| | Vehicles | 0.01 | 0.04 | 0.05 | 0.00 | 0.00 | 0.00 | 14.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | 6.50 | 55.24 | 39.82 | 0.00 | 1.77 | 1.66 | 5678.26 | 0.05 | 0.43 | 0.31 | 0.00 | 0.01 | 0.01 | 44.75 |
| | **Subtotal Activity #9** | **10.04** | **83.08** | **69.90** | **0.07** | **3.07** | **2.86** | **12298.65** | **0.07** | **0.61** | **0.49** | **0.00** | **0.02** | **0.02** | **90.18** |
| 2025 Overlap Scenario 1 (Activity #4 and #8) | | 11.46 | 94.99 | 81.73 | 0.12 | 3.22 | 3.05 | 17842.13 | NA | NA | NA | NA | NA | NA | NA |
| 2025 Overlap Scenario 2 (Activity #9) | | 10.04 | 83.08 | 69.90 | 0.07 | 3.07 | 2.86 | 12298.65 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2025 (SDAPCD)** | | 11.46 | 94.99 | 81.73 | 0.12 | 3.22 | 3.05 | 17842.13 | 0.19 | 1.59 | 1.35 | 0.00 | 0.06 | 0.05 | 277.21 |

**Emissions in South Coast Air Quality Management District (SCAQMD), up to 3 miles offshore for boat emissions, 2025**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.06 | 0.21 | 0.33 | 0.00 | 0.02 | 0.01 | 214.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.94 |
| | Fugitive Dust | NA | NA | NA | NA | 0.09 | 0.02 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | Boats within 3 miles | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.03 | 0.19 | 0.11 | 0.00 | 0.01 | 0.00 | 21.26 |
| | **Subtotal Activity #4** | **3.15** | **21.41** | **13.03** | **0.00** | **0.75** | **0.56** | **2577.42** | **0.03** | **0.19** | **0.12** | **0.00** | **0.01** | **0.00** | **22.21** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.02 | 0.01 | 0.11 | 0.00 | 0.00 | 0.00 | 23.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 |
| | Fugitive Dust | NA | NA | NA | NA | 0.02 | 0.01 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats within 3 miles | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #8** | **0.02** | **0.01** | **0.11** | **0.00** | **0.03** | **0.01** | **23.23** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.21** |
| Activity #9 Project Demobilization (2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.25 | 0.45 | 1.40 | 0.00 | 0.08 | 0.04 | 478.13 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 4.75 |
| | Fugitive Dust | NA | NA | NA | NA | 0.46 | 0.11 | NA | NA | NA | NA | NA | 0.005 | 0.001 | NA |
| | Boats within 3 miles | 4.11 | 30.33 | 19.48 | 0.00 | 0.97 | 0.85 | 3227.37 | 0.03 | 0.22 | 0.14 | 0.00 | 0.01 | 0.01 | 24.28 |
| | **Subtotal Activity #9** | **4.36** | **30.78** | **20.89** | **0.00** | **1.51** | **1.00** | **3705.50** | **0.03** | **0.23** | **0.15** | **0.00** | **0.01** | **0.01** | **29.03** |
| 2025 Overlap Scenario 1 (Activity #4 and #8) | | 3.18 | 21.42 | 13.15 | 0.00 | 0.77 | 0.57 | 2600.66 | NA | NA | NA | NA | NA | NA | NA |
| 2025 Overlap Scenario 2 (Activity #9) | | 4.36 | 30.78 | 20.89 | 0.00 | 1.51 | 1.00 | 3705.50 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2025 (SCAQMD)** | | 4.36 | 30.78 | 20.89 | 0.00 | 1.51 | 1.00 | 3705.50 | 0.06 | 0.42 | 0.27 | 0.00 | 0.02 | 0.01 | 51.44 |

**Offshore - Full Removal of Conduits**

**Table 2.6b Construction Emission Summary (including boat emissions at all distances offshore), 2024**

**Emissions in San Diego Air Pollution Control District (SDAPCD), (including boat emissions at all distances offshore), 2025**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | 2.57 | 19.62 | 22.05 | 0.07 | 0.71 | 0.69 | 7072.96 | 0.03 | 0.22 | 0.24 | 0.00 | 0.01 | 0.01 | 77.80 |
| | Vehicles | 0.01 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 24.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.07 | 0.65 | 0.48 | 0.00 | 0.02 | 0.02 | 65.64 |
| | **Subtotal Activity #4** | **9.73** | **82.19** | **68.00** | **0.07** | **2.72** | **2.58** | **13495.03** | **0.10** | **0.86** | **0.72** | **0.00** | **0.03** | **0.03** | **143.56** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | 1.72 | 12.80 | 13.71 | 0.05 | 0.49 | 0.46 | 4343.63 | 0.02 | 0.13 | 0.14 | 0.00 | 0.00 | 0.00 | 43.44 |
| | Vehicles | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 3.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| | Fugitive Dust | NA | NA | NA | NA | 0.00 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #8** | **1.73** | **12.80** | **13.73** | **0.05** | **0.50** | **0.46** | **4347.10** | **0.02** | **0.13** | **0.14** | **0.00** | **0.00** | **0.00** | **43.47** |
| Activity #9 Project Demobilization (2025) | Equipment | 3.52 | 27.80 | 30.04 | 0.07 | 1.29 | 1.19 | 6605.48 | 0.02 | 0.17 | 0.19 | 0.00 | 0.01 | 0.01 | 45.33 |
| | Vehicles | 0.01 | 0.04 | 0.05 | 0.00 | 0.00 | 0.00 | 14.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 |
| | Fugitive Dust | NA | NA | NA | NA | 0.01 | 0.00 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | 10.13 | 81.75 | 56.74 | 0.00 | 2.59 | 2.38 | 8560.81 | 0.08 | 0.63 | 0.42 | 0.00 | 0.02 | 0.02 | 66.27 |
| | **Subtotal Activity #9** | **13.67** | **109.59** | **86.82** | **0.07** | **3.89** | **3.57** | **15181.20** | **0.10** | **0.80** | **0.61** | **0.00** | **0.03** | **0.02** | **111.71** |
| 2025 Overlap Scenario 1 (Activity #4 and #8) | | 11.46 | 94.99 | 81.73 | 0.12 | 3.22 | 3.05 | 17842.13 | NA | NA | NA | NA | NA | NA | NA |
| 2025 Overlap Scenario 2 (Activity #9) | | 13.67 | 109.59 | 86.82 | 0.07 | 3.89 | 3.57 | 15181.20 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2025 (SDAPCD)** | | 13.67 | 109.59 | 86.82 | 0.12 | 3.89 | 3.57 | 17842.13 | 0.22 | 1.79 | 1.47 | 0.00 | 0.06 | 0.06 | 298.73 |

**Emissions in South Coast Air Quality Management District (SCAQMD), (including boat emissions at all distances offshore), 2025**

| | | Maximum Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| **Activities** | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.06 | 0.21 | 0.33 | 0.00 | 0.02 | 0.01 | 214.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.94 |
| | Fugitive Dust | NA | NA | NA | NA | 0.09 | 0.02 | NA | NA | NA | NA | NA | 0.001 | 0.000 | NA |
| | Boats total | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.11 | 0.76 | 0.46 | 0.00 | 0.02 | 0.02 | 85.05 |
| | **Subtotal Activity #4** | **12.42** | **85.01** | **51.12** | **0.00** | **2.67** | **2.16** | **9665.01** | **0.11** | **0.76** | **0.46** | **0.00** | **0.02** | **0.02** | **85.99** |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.02 | 0.01 | 0.11 | 0.00 | 0.00 | 0.00 | 23.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 |
| | Fugitive Dust | NA | NA | NA | NA | 0.02 | 0.01 | NA | NA | NA | NA | NA | 0.000 | 0.000 | NA |
| | Boats total | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | **Subtotal Activity #8** | **0.02** | **0.01** | **0.11** | **0.00** | **0.03** | **0.01** | **23.23** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.21** |
| Activity #9 Project Demobilization (2025) | Equipment | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Vehicles | 0.25 | 0.45 | 1.40 | 0.00 | 0.08 | 0.04 | 478.13 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 4.75 |
| | Fugitive Dust | NA | NA | NA | NA | 0.46 | 0.11 | NA | NA | NA | NA | NA | 0.005 | 0.001 | NA |
| | Boats total | 15.00 | 109.85 | 70.25 | 0.00 | 3.43 | 2.99 | 11875.02 | 0.12 | 0.80 | 0.49 | 0.00 | 0.02 | 0.02 | 88.85 |
| | **Subtotal Activity #9** | **15.25** | **110.30** | **71.66** | **0.00** | **3.97** | **3.14** | **12353.15** | **0.12** | **0.81** | **0.50** | **0.00** | **0.03** | **0.02** | **93.60** |
| 2025 Overlap Scenario 1 (Activity #4 and #8) | | 12.44 | 85.02 | 51.24 | 0.00 | 2.69 | 2.17 | 9688.24 | NA | NA | NA | NA | NA | NA | NA |
| 2025 Overlap Scenario 2 (Activity #9) | | 15.25 | 110.30 | 71.66 | 0.00 | 3.97 | 3.14 | 12353.15 | NA | NA | NA | NA | NA | NA | NA |
| **Maximum Emissions 2025 (SCAQMD)** | | 15.25 | 110.30 | 71.66 | 0.00 | 3.97 | 3.14 | 12353.15 | 0.23 | 1.57 | 0.96 | 0.00 | 0.05 | 0.04 | 179.80 |

**Offshore - Full Removal of Conduits**
**Table 2.7a Construction Equipment Emissions 2022**
**Construction year** 2022

**Construction Equipment Information**

| Activity # | Offroad Equipment Name | | per Equipment | | | Notes |
|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per Day | Number of Days | |
| Activity #1 Bulkhead Construction (2022) | 100 Ton Crawler Crane | 1 | 350 | 8 | 38 | SONGS Site |
| | 50 Ton Crawler Crane | 1 | 200 | 8 | 66 | SONGS Site |
| | Concrete Saw | 1 | 10 | 8 | 22 | SONGS Site |
| | Concrete Boom Pump | 1 | 350 | 8 | 9 | SONGS Site |
| | Welding Set | 1 | 25 | 8 | 26 | SONGS Site |
| | 60KW Generator | 1 | 85 | 8 | 35 | SONGS Site |
| | 1200 CFM Compressor | 1 | 250 | 4 | 53 | SONGS Site |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Winch Motors | 4 | 50 | 5.5 | 22 | SONGS Site |
| | 1200 CFM Compressor | 1 | 250 | 5.5 | 22 | SONGS Site |
| | Welding Set | 1 | 10 | 8 | 22 | SONGS Site |
| | 60KW Generator | 1 | 85 | 8 | 22 | SONGS Site |
| | Long reach excavator - 96' | 1 | 400 | 6 | 10 | SONGS Site |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 22 | SONGS Site |
| | 50 Ton Fork Lift | 2 | 90 | 8 | 22 | SONGS Site |
| | Cat 966 Front End Loader | 2 | 260 | 8 | 22 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 16 | SONGS Site |
| Activity #3 Trestle Material Supply (2022, 2023) | 200 Ton Yard Crane | 1 | 350 | 6 | 20 | SONGS Site |
| | Forklift | 1 | 250 | 4 | 20 | SONGS Site |

Note:
Equipment usage data were provided by SCE on 3/24/2017.

**Offshore - Full Removal of Conduits**

**Table 2.7a Construction Equipment Emissions 2022**

**Construction year** 2022

**Equipment Information and Emission Factors**

| Activities | Equipment | per equipment | | | | | Emission Factor Year | CalEEMod Default Load | CalEEMod Emission Factors (100% load) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per day | Days per year | Hours per Year | | | ROG g/hp-hr | NOx g/hp-hr | CO g/hp-hr | SO2 g/hp-hr | PM10 g/hp-hr | PM2.5 g/hp-hr | CO2 g/hp-hr | CH4 g/hp-hr | CO2e g/hp-hr |
| Activity #1 Bulkhead Construction (2022) | 100 Ton Crawler Crane | 1 | 350 | 8 | 38 | 304 | 2022 | 0.290 | 0.261 | 2.894 | 2.212 | 0.005 | 0.117 | 0.108 | 472.181 | 0.153 | 476.5 |
| | 50 Ton Crawler Crane | 1 | 200 | 8 | 66 | 528 | 2022 | 0.290 | 0.316 | 3.541 | 1.602 | 0.005 | 0.147 | 0.135 | 472.983 | 0.153 | 477.3 |
| | Concrete Saw | 1 | 10 | 8 | 22 | 176 | 2022 | 0.730 | 0.685 | 4.332 | 2.339 | 0.007 | 0.161 | 0.161 | 568.299 | 0.061 | 570.0 |
| | Concrete Boom Pump | 1 | 350 | 8 | 9 | 72 | 2022 | 0.740 | 0.180 | 1.404 | 1.001 | 0.005 | 0.044 | 0.044 | 568.300 | 0.016 | 568.7 |
| | Welding Set | 1 | 25 | 8 | 26 | 208 | 2022 | 0.450 | 0.739 | 4.470 | 2.426 | 0.007 | 0.193 | 0.193 | 568.299 | 0.066 | 570.1 |
| | 60KW Generator | 1 | 85 | 8 | 35 | 280 | 2022 | 0.740 | 0.301 | 2.671 | 3.353 | 0.006 | 0.134 | 0.134 | 568.299 | 0.027 | 569.1 |
| | 1200 CFM Compressor | 1 | 250 | 4 | 53 | 212 | 2022 | 0.480 | 0.255 | 1.617 | 1.102 | 0.006 | 0.052 | 0.052 | 568.300 | 0.023 | 568.9 |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Winch Motors | 4 | 50 | 5.5 | 22 | 484 | 2022 | 0.420 | 0.920 | 4.741 | 5.167 | 0.005 | 0.348 | 0.320 | 529.183 | 0.171 | 534.0 |
| | 1200 CFM Compressor | 1 | 250 | 5.5 | 22 | 121 | 2022 | 0.480 | 0.255 | 1.617 | 1.102 | 0.006 | 0.052 | 0.052 | 568.300 | 0.023 | 568.9 |
| | Welding Set | 1 | 10 | 8 | 22 | 176 | 2022 | 0.450 | 0.707 | 4.408 | 3.519 | 0.008 | 0.203 | 0.203 | 568.300 | 0.063 | 570.1 |
| | 60KW Generator | 1 | 85 | 8 | 22 | 176 | 2022 | 0.740 | 0.301 | 2.671 | 3.353 | 0.006 | 0.134 | 0.134 | 568.299 | 0.027 | 569.1 |
| | Long reach excavator - 96' | 1 | 400 | 6 | 10 | 60 | 2022 | 0.380 | 0.128 | 1.040 | 1.061 | 0.005 | 0.035 | 0.032 | 469.711 | 0.152 | 474.0 |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 22 | 176 | 2022 | 0.290 | 0.261 | 2.894 | 2.212 | 0.005 | 0.117 | 0.108 | 472.181 | 0.153 | 476.5 |
| | 50 Ton Fork Lift | 2 | 90 | 8 | 22 | 352 | 2022 | 0.200 | 0.362 | 3.360 | 3.675 | 0.005 | 0.223 | 0.205 | 471.529 | 0.153 | 475.8 |
| | Cat 966 Front End Loader | 2 | 260 | 8 | 22 | 352 | 2022 | 0.370 | 0.160 | 1.437 | 1.280 | 0.005 | 0.053 | 0.049 | 469.256 | 0.152 | 473.5 |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 16 | 160 | 2022 | 0.290 | 0.261 | 2.894 | 2.212 | 0.005 | 0.117 | 0.108 | 472.181 | 0.153 | 476.5 |
| Activity #3 Trestle Material Supply (2022, 2023) | 200 Ton Yard Crane | 1 | 350 | 6 | 20 | 120 | 2022 | 0.290 | 0.261 | 2.894 | 2.212 | 0.005 | 0.117 | 0.108 | 472.181 | 0.153 | 476.5 |
| | Forklift | 1 | 250 | 4 | 20 | 80 | 2022 | 0.200 | 0.236 | 2.319 | 1.317 | 0.005 | 0.090 | 0.083 | 473.326 | 0.153 | 477.6 |

Assumptions:

CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014).

CO2 1

CH4 28

N2O 265

Note:

Load factor and emission factors are from CalEEMod Appendix D: Table 3.4 Offroad Equipment Emission Factors (g/hp-hr) and Table 3.3 OFFROAD Default Horsepower and Load Factors (October 2017).

**Offshore - Full Removal of Conduits**
**Table 2.7a Construction Equipment Emissions 2022**
**Construction year** 2022

**Construction Emissions - Offroad Equipment Emissions in San Diego Air Pollution Control District (SDAPCD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Bulkhead Construction (2022) | 100 Ton Crawler Crane | 0.47 | 5.18 | 3.96 | 0.01 | 0.21 | 0.19 | 852.93 | 0.009 | 0.098 | 0.075 | 0.000 | 0.004 | 0.004 | 16.206 |
| | 50 Ton Crawler Crane | 0.32 | 3.62 | 1.64 | 0.01 | 0.15 | 0.14 | 488.21 | 0.011 | 0.120 | 0.054 | 0.000 | 0.005 | 0.005 | 16.111 |
| | Concrete Saw | 0.09 | 0.56 | 0.30 | 0.00 | 0.02 | 0.02 | 73.39 | 0.001 | 0.006 | 0.003 | 0.000 | 0.000 | 0.000 | 0.807 |
| | Concrete Boom Pump | 0.82 | 6.41 | 4.57 | 0.02 | 0.20 | 0.20 | 2597.98 | 0.004 | 0.029 | 0.021 | 0.000 | 0.001 | 0.001 | 11.691 |
| | Welding Set | 0.15 | 0.89 | 0.48 | 0.00 | 0.04 | 0.04 | 113.12 | 0.002 | 0.012 | 0.006 | 0.000 | 0.000 | 0.000 | 1.471 |
| | 60KW Generator | 0.33 | 2.96 | 3.72 | 0.01 | 0.15 | 0.15 | 631.28 | 0.006 | 0.052 | 0.065 | 0.000 | 0.003 | 0.003 | 11.047 |
| | 1200 CFM Compressor | 0.27 | 1.71 | 1.17 | 0.01 | 0.06 | 0.06 | 602.06 | 0.007 | 0.045 | 0.031 | 0.000 | 0.001 | 0.001 | 15.955 |
| | Subtotal of Activity #1 2022 | 2.45 | 21.33 | 15.84 | 0.05 | 0.82 | 0.80 | 5358.97 | 0.04 | 0.36 | 0.26 | 0.00 | 0.01 | 0.01 | 73.29 |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Winch Motors | 0.94 | 4.83 | 5.26 | 0.01 | 0.35 | 0.33 | 543.86 | 0.010 | 0.053 | 0.058 | 0.000 | 0.004 | 0.004 | 5.982 |
| | 1200 CFM Compressor | 0.37 | 2.35 | 1.60 | 0.01 | 0.08 | 0.08 | 827.83 | 0.004 | 0.026 | 0.018 | 0.000 | 0.001 | 0.001 | 9.106 |
| | Welding Set | 0.06 | 0.35 | 0.28 | 0.00 | 0.02 | 0.02 | 45.24 | 0.001 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.498 |
| | 60KW Generator | 0.33 | 2.96 | 3.72 | 0.01 | 0.15 | 0.15 | 631.28 | 0.004 | 0.033 | 0.041 | 0.000 | 0.002 | 0.002 | 6.944 |
| | Long reach excavator - 96' | 0.26 | 2.09 | 2.13 | 0.01 | 0.07 | 0.06 | 952.95 | 0.001 | 0.010 | 0.011 | 0.000 | 0.000 | 0.000 | 4.765 |
| | 100 Ton Crawler Crane | 0.47 | 5.18 | 3.96 | 0.01 | 0.21 | 0.19 | 852.93 | 0.005 | 0.057 | 0.044 | 0.000 | 0.002 | 0.002 | 9.382 |
| | 50 Ton Fork Lift | 0.23 | 2.13 | 2.33 | 0.00 | 0.14 | 0.13 | 302.10 | 0.003 | 0.023 | 0.026 | 0.000 | 0.002 | 0.001 | 3.323 |
| | Cat 966 Front End Loader | 0.54 | 4.88 | 4.34 | 0.02 | 0.18 | 0.17 | 1606.77 | 0.006 | 0.054 | 0.048 | 0.000 | 0.002 | 0.002 | 17.674 |
| | 200 ton Derrick Crane | 0.50 | 5.55 | 4.24 | 0.01 | 0.22 | 0.21 | 913.85 | 0.004 | 0.044 | 0.034 | 0.000 | 0.002 | 0.002 | 7.311 |
| | Subtotal of Activity #2 2022 | 3.70 | 30.32 | 27.88 | 0.07 | 1.42 | 1.33 | 6676.81 | 0.04 | 0.30 | 0.28 | 0.00 | 0.01 | 0.01 | 64.99 |
| Activity #3 Trestle Material Supply (2022, 2023) | 200 Ton Yard Crane | 0.35 | 3.89 | 2.97 | 0.01 | 0.16 | 0.15 | 639.70 | 0.004 | 0.039 | 0.030 | 0.000 | 0.002 | 0.001 | 6.397 |
| | Forklift | 0.10 | 1.02 | 0.58 | 0.00 | 0.04 | 0.04 | 210.59 | 0.001 | 0.010 | 0.006 | 0.000 | 0.000 | 0.000 | 2.106 |
| | Subtotal of Activity #3 2022 | 0.45 | 4.91 | 3.55 | 0.01 | 0.20 | 0.18 | 850.28 | 0.00 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 8.50 |

**Offshore - Full Removal of Conduits**
**Table 2.7b Construction Equipment Emissions 2023**
**Construction year** 2023

**Construction Equipment Information**

| Activity # | Offroad Equipment Name | Number of Equipment | per Equipment | | | Notes |
|---|---|---|---|---|---|---|
| | | | HP | Hours per Day | Number of Days | |
| Activity #3 Trestle Material Supply (2022, 2023) | 200 Ton Yard Crane | 1 | 350 | 6 | 80 | SONGS Site |
| | Forklift | 1 | 250 | 4 | 80 | SONGS Site |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 4 | 85 | 5 | 220 | SONGS Site |
| | Power pack | 2 | 350 | 4 | 220 | SONGS Site |
| | Welder | 4 | 5 | 2 | 220 | SONGS Site |
| | Compressor | 2 | 250 | 5 | 220 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 220 | SONGS Site |
| | 140 Ton Rail Crane | 1 | 300 | 5 | 220 | SONGS Site |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Generator | 6 | 85 | 6.4 | 147 | SONGS Site |
| | Power pack | 5 | 350 | 8 | 147 | SONGS Site |
| | Welder | 6 | 5 | 6.4 | 147 | SONGS Site |
| | Compressor | 6 | 250 | 8 | 147 | SONGS Site |
| | 200 ton Derrick Crane | 4 | 300 | 10 | 147 | SONGS Site |
| | Long Reach Excavator on Barge | 1 | 450 | 4 | 147 | SONGS Site |
| | 140 Ton Rail Crane | 1 | 300 | 8 | 147 | SONGS Site |
| Activity #10 Concrete Disposal (2023, 2024) | 100 Ton Crawler Crane | 1 | 350 | 8 | 154 | POLB |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 154 | POLB |
| | Concrete Crusher | 1 | 225 | 8 | 154 | POLB |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 154 | POLB |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 154 | POLB |
| | 20 Ton End Dump Truck | 2 | 320 | 8 | 154 | POLB |

Note:
Equipment usage data were provided by SCE on 3/24/2017.

**Offshore - Full Removal of Conduits**

**Table 2.7b Construction Equipment Emissions 2023**

**Construction year** 2023

**Equipment Information and Emission Factors**

| Activities | Equipment | per equipment | | | | | Emission | CalEEMod | CalEEMod Emission Factors (100% load) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per day | Days per year | Hours per Year | Factor Year | Default Load | ROG g/hp-hr | NOx g/hp-hr | CO g/hp-hr | SO2 g/hp-hr | PM10 g/hp-hr | PM2.5 g/hp-hr | CO2 g/hp-hr | CH4 g/hp-hr | CO2e g/hp-hr |
| Activity #3 Trestle Material Supply (2022, 2023) | 200 Ton Yard Crane | 1 | 350 | 6 | 80 | 480 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.6 |
| | Forklift | 1 | 250 | 4 | 80 | 320 | 2023 | 0.200 | 0.204 | 1.807 | 1.235 | 0.005 | 0.069 | 0.063 | 473.326 | 0.153 | 477.6 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 4 | 85 | 5 | 220 | 4,400 | 2023 | 0.740 | 0.279 | 2.477 | 3.347 | 0.006 | 0.117 | 0.117 | 568.299 | 0.025 | 569.0 |
| | Power pack | 2 | 350 | 4 | 220 | 1,760 | 2023 | 0.740 | 0.158 | 1.228 | 0.986 | 0.005 | 0.037 | 0.037 | 568.299 | 0.014 | 568.7 |
| | Welder | 4 | 5 | 2 | 220 | 1,760 | 2023 | 0.450 | 0.698 | 4.359 | 3.508 | 0.008 | 0.194 | 0.194 | 568.300 | 0.063 | 570.1 |
| | Compressor | 2 | 250 | 5 | 220 | 2,200 | 2023 | 0.480 | 0.243 | 1.420 | 1.099 | 0.006 | 0.045 | 0.045 | 568.299 | 0.021 | 568.9 |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 220 | 2,200 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.6 |
| | 140 Ton Rail Crane | 1 | 300 | 5 | 220 | 1,100 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.6 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Generator | 6 | 85 | 6.4 | 147 | 5,645 | 2023 | 0.740 | 0.279 | 2.477 | 3.347 | 0.006 | 0.117 | 0.117 | 568.299 | 0.025 | 569.0 |
| | Power pack | 5 | 350 | 8 | 147 | 5,880 | 2023 | 0.740 | 0.158 | 1.228 | 0.986 | 0.005 | 0.037 | 0.037 | 568.299 | 0.014 | 568.7 |
| | Welder | 6 | 5 | 6.4 | 147 | 5,645 | 2023 | 0.450 | 0.698 | 4.359 | 3.508 | 0.008 | 0.194 | 0.194 | 568.300 | 0.063 | 570.1 |
| | Compressor | 6 | 250 | 8 | 147 | 7,056 | 2023 | 0.480 | 0.243 | 1.420 | 1.099 | 0.006 | 0.045 | 0.045 | 568.299 | 0.021 | 568.9 |
| | 200 ton Derrick Crane | 4 | 300 | 10 | 147 | 5,880 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.6 |
| | Long Reach Excavator on Barge | 1 | 450 | 4 | 147 | 588 | 2023 | 0.380 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.889 | 0.152 | 474.1 |
| | 140 Ton Rail Crane | 1 | 300 | 8 | 147 | 1,176 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.6 |
| Activity #10 Concrete Disposal (2023, 2024) | 100 Ton Crawler Crane | 1 | 350 | 8 | 154 | 1,232 | 2023 | 0.290 | 0.236 | 2.511 | 2.010 | 0.005 | 0.102 | 0.093 | 472.294 | 0.153 | 476.6 |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 154 | 1,232 | 2023 | 0.200 | 0.327 | 3.057 | 3.647 | 0.005 | 0.189 | 0.174 | 471.529 | 0.153 | 475.8 |
| | Concrete Crusher | 1 | 225 | 8 | 154 | 1,232 | 2023 | 0.780 | 0.248 | 1.330 | 1.111 | 0.006 | 0.043 | 0.043 | 568.299 | 0.022 | 568.9 |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 154 | 1,232 | 2023 | 0.370 | 0.152 | 1.247 | 1.279 | 0.005 | 0.047 | 0.043 | 469.465 | 0.152 | 473.7 |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 154 | 2,464 | 2023 | 0.380 | 0.122 | 0.893 | 1.051 | 0.005 | 0.030 | 0.028 | 469.889 | 0.152 | 474.1 |
| | 20 Ton End Dump Truck | 2 | 320 | 8 | 154 | 2,464 | 2023 | 0.380 | 0.187 | 1.324 | 1.221 | 0.005 | 0.048 | 0.044 | 475.049 | 0.154 | 479.4 |

Assumptions:

CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014).

| | |
|---|---|
| CO2 | 1 |
| CH4 | 28 |
| N2O | 265 |

Note:

Load factor and emission factors are from CalEEMod Appendix D: Table 3.4 Offroad Equipment Emission Factors (g/hp-hr) and Table 3.3 OFFROAD Default Horsepower and Load Factors (October 2017).

**Offshore - Full Removal of Conduits**
**Table 2.7b Construction Equipment Emissions 2023**
**Construction year** 2023

**Construction Emissions - Offroad Equipment Emissions in San Diego Air Pollution Control District (SDAPCD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | 200 Ton Yard Crane | 0.32 | 3.37 | 2.70 | 0.01 | 0.14 | 0.12 | 639.85 | 0.013 | 0.135 | 0.108 | 0.000 | 0.005 | 0.005 | 25.594 |
| | Forklift | 0.09 | 0.80 | 0.54 | 0.00 | 0.03 | 0.03 | 210.59 | 0.004 | 0.032 | 0.022 | 0.000 | 0.001 | 0.001 | 8.423 |
| | Subtotal Activity #3 2023 | 0.41 | 4.17 | 3.24 | 0.01 | 0.17 | 0.15 | 850.44 | 0.02 | 0.17 | 0.13 | 0.00 | 0.01 | 0.01 | 34.02 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 0.77 | 6.87 | 9.28 | 0.02 | 0.32 | 0.32 | 1578.04 | 0.085 | 0.756 | 1.021 | 0.002 | 0.036 | 0.036 | 173.585 |
| | Power pack | 0.72 | 5.61 | 4.50 | 0.02 | 0.17 | 0.17 | 2597.72 | 0.079 | 0.617 | 0.495 | 0.003 | 0.019 | 0.019 | 285.750 |
| | Welder | 0.03 | 0.17 | 0.14 | 0.00 | 0.01 | 0.01 | 22.62 | 0.003 | 0.019 | 0.015 | 0.000 | 0.001 | 0.001 | 2.488 |
| | Compressor | 0.64 | 3.76 | 2.91 | 0.02 | 0.12 | 0.12 | 1504.99 | 0.071 | 0.413 | 0.320 | 0.002 | 0.013 | 0.013 | 165.549 |
| | 200 ton Derrick Crane | 0.45 | 4.82 | 3.86 | 0.01 | 0.20 | 0.18 | 914.07 | 0.050 | 0.530 | 0.424 | 0.001 | 0.022 | 0.020 | 100.548 |
| | 140 Ton Rail Crane | 0.23 | 2.41 | 1.93 | 0.00 | 0.10 | 0.09 | 457.04 | 0.025 | 0.265 | 0.212 | 0.001 | 0.011 | 0.010 | 50.274 |
| | Subtotal Activity #4 2023 | 2.85 | 23.63 | 22.62 | 0.07 | 0.91 | 0.89 | 7074.49 | 0.31 | 2.60 | 2.49 | 0.01 | 0.10 | 0.10 | 778.19 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Generator | 1.49 | 13.19 | 17.82 | 0.03 | 0.62 | 0.62 | 3029.84 | 0.109 | 0.969 | 1.310 | 0.002 | 0.046 | 0.046 | 222.694 |
| | Power pack | 3.61 | 28.05 | 22.52 | 0.11 | 0.85 | 0.85 | 12988.62 | 0.265 | 2.061 | 1.655 | 0.008 | 0.062 | 0.062 | 954.664 |
| | Welder | 0.13 | 0.83 | 0.67 | 0.00 | 0.04 | 0.04 | 108.58 | 0.010 | 0.061 | 0.049 | 0.000 | 0.003 | 0.003 | 7.981 |
| | Compressor | 3.09 | 18.03 | 13.96 | 0.08 | 0.57 | 0.57 | 7223.96 | 0.227 | 1.325 | 1.026 | 0.006 | 0.042 | 0.042 | 530.961 |
| | 200 ton Derrick Crane | 1.81 | 19.26 | 15.42 | 0.04 | 0.78 | 0.71 | 3656.29 | 0.133 | 1.416 | 1.133 | 0.003 | 0.058 | 0.052 | 268.737 |
| | Long Reach Excavator on Barge | 0.18 | 1.35 | 1.58 | 0.01 | 0.05 | 0.04 | 714.98 | 0.014 | 0.099 | 0.116 | 0.001 | 0.003 | 0.003 | 52.551 |
| | 140 Ton Rail Crane | 0.36 | 3.85 | 3.08 | 0.01 | 0.16 | 0.14 | 731.26 | 0.027 | 0.283 | 0.227 | 0.001 | 0.012 | 0.010 | 53.747 |
| | Subtotal Activity #5 2023 | 10.67 | 84.56 | 75.06 | 0.28 | 3.06 | 2.97 | 28453.54 | 0.78 | 6.22 | 5.52 | 0.02 | 0.22 | 0.22 | 2091.33 |

**Construction Emissions - Offroad Equipment Emissions in South Coast Air Quality Management District (SCAQMD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #10 Concrete Disposal (2023, 2024) | 100 Ton Crawler Crane | 0.42 | 4.49 | 3.60 | 0.01 | 0.18 | 0.17 | 853.13 | 0.033 | 0.346 | 0.277 | 0.001 | 0.014 | 0.013 | 65.691 |
| | 50 Ton Fork Lift | 0.10 | 0.97 | 1.16 | 0.00 | 0.06 | 0.06 | 151.05 | 0.008 | 0.075 | 0.089 | 0.000 | 0.005 | 0.004 | 11.631 |
| | Concrete Crusher | 0.77 | 4.12 | 3.44 | 0.02 | 0.13 | 0.13 | 1760.93 | 0.059 | 0.317 | 0.265 | 0.001 | 0.010 | 0.010 | 135.591 |
| | Cat 966 Front End Loader | 0.26 | 2.12 | 2.17 | 0.01 | 0.08 | 0.07 | 803.74 | 0.020 | 0.163 | 0.167 | 0.001 | 0.006 | 0.006 | 61.888 |
| | Excavator with Hoe Ram | 0.57 | 4.19 | 4.93 | 0.02 | 0.14 | 0.13 | 2224.38 | 0.044 | 0.323 | 0.380 | 0.002 | 0.011 | 0.010 | 171.278 |
| | 20 Ton End Dump Truck | 0.80 | 5.68 | 5.24 | 0.02 | 0.21 | 0.19 | 2056.09 | 0.062 | 0.437 | 0.403 | 0.002 | 0.016 | 0.015 | 158.319 |
| | Subtotal Activity #10 2023 | 2.93 | 21.57 | 20.53 | 0.08 | 0.80 | 0.75 | 7849.33 | 0.23 | 1.66 | 1.58 | 0.01 | 0.06 | 0.06 | 604.40 |

**Offshore - Full Removal of Conduits**
**Table 2.7c Construction Equipment Emissions 2024**
**Construction year** 2024

**Construction Equipment Information**

| Activity # | Offroad Equipment Name | | per Equipment | | | Notes |
|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per Day | Number of Days | |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 4 | 85 | 5 | 44 | SONGS Site |
| | Power pack | 2 | 350 | 4 | 44 | SONGS Site |
| | Welder | 4 | 5 | 2 | 44 | SONGS Site |
| | Compressor | 2 | 250 | 5 | 44 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 44 | SONGS Site |
| | 140 Ton Rail Crane | 1 | 300 | 5 | 44 | SONGS Site |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Generator | 6 | 85 | 6.4 | 63 | SONGS Site |
| | Power pack | 5 | 350 | 8 | 63 | SONGS Site |
| | Welder | 6 | 5 | 6.4 | 63 | SONGS Site |
| | Compressor | 6 | 250 | 8 | 63 | SONGS Site |
| | 200 ton Derrick Crane | 4 | 300 | 10 | 63 | SONGS Site |
| | Long Reach Excavator on Barge | 1 | 450 | 4 | 63 | SONGS Site |
| | 140 Ton Rail Crane | 1 | 300 | 8 | 63 | SONGS Site |
| Activity #6 Preparation for Culvert Demolition (2024) | Generator | 2 | 85 | 6.4 | 50 | SONGS Site |
| | Power pack | 2 | 350 | 6.4 | 50 | SONGS Site |
| | 50 Ton Crawler Crane | 1 | 200 | 7.2 | 50 | SONGS Site |
| | Welder | 4 | 5 | 6.4 | 50 | SONGS Site |
| | Compressor | 2 | 250 | 8 | 50 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 4.8 | 50 | SONGS Site |
| | 140 Ton Crawler Crane | 1 | 350 | 6.4 | 50 | SONGS Site |
| | 1466 Long Reach Excavator | 2 | 400 | 6 | 50 | SONGS Site |
| | Floating Long Reach Excavator | 1 | 400 | 6 | 50 | SONGS Site |
| | Cat D6 Bulldozer | 2 | 350 | 6 | 50 | SONGS Site |
| | Front End Loader | 4 | 300 | 6 | 50 | SONGS Site |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | 50 Ton Crane | 2 | 300 | 3.2 | 35 | SONGS Site |
| | D4 Dozer | 1 | 300 | 3.2 | 35 | SONGS Site |
| | Cat 350 Excavator | 2 | 350 | 6 | 35 | SONGS Site |
| | Cat 966 Loader | 2 | 350 | 6.4 | 35 | SONGS Site |
| | Compressor | 2 | 250 | 6.4 | 35 | SONGS Site |
| | Generator | 2 | 85 | 6.4 | 35 | SONGS Site |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 43 | SONGS Site |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 43 | SONGS Site |
| | Concrete Crusher | 1 | 225 | 8 | 43 | SONGS Site |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 43 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 35 | SONGS Site |
| | 140 Ton Crawler Crane | 2 | 350 | 3.6 | 35 | SONGS Site |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | 50 Ton Crane | 1 | 300 | 4 | 100 | SONGS Site |
| | D4 Dozer | 1 | 300 | 2 | 100 | SONGS Site |
| | Cat 350 Excavator | 1 | 350 | 3.2 | 100 | SONGS Site |
| | Cat 966 Loader | 1 | 350 | 4 | 100 | SONGS Site |
| | Compressor | 1 | 250 | 6 | 100 | SONGS Site |
| | Generator | 1 | 85 | 5.6 | 100 | SONGS Site |
| | Water truck | 1 | 400 | 6 | 100 | SONGS Site |
| | 140 Ton Crawler Crane | 1 | 350 | 4 | 100 | SONGS Site |
| Activity #10 Concrete Disposal (2023, 2024) | 100 Ton Crawler Crane | 1 | 350 | 8 | 132 | POLB |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 132 | POLB |
| | Concrete Crusher | 1 | 225 | 8 | 132 | POLB |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 132 | POLB |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 132 | POLB |
| | 20 Ton End Dump Truck | 2 | 320 | 8 | 132 | POLB |

Note:
Equipment usage data were provided by SCE on 3/24/2017.
POLB: Port of Long Beach.

**Offshore - Full Removal of Conduits**
**Table 2.7c Construction Equipment Emissions 2024**
**Construction year** 2024
**Equipment Information and Emission Factors**

| Activities | Equipment | per equipment | | | | | Emission | CalEEMod | CalEEMod Emission Factors (100% load) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per day | Days per year | Hours per Year | Factor Year | Default Load | ROG g/hp-hr | NOx g/hp-hr | CO g/hp-hr | SO2 g/hp-hr | PM10 g/hp-hr | PM2.5 g/hp-hr | CO2 g/hp-hr | CH4 g/hp-hr | CO2e g/hp-hr |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 4 | 85 | 5 | 44 | 880 | 2024 | 0.740 | 0.260 | 2.321 | 3.342 | 0.006 | 0.101 | 0.101 | 568.299 | 0.023 | 568.9 |
| | Power pack | 2 | 350 | 4 | 44 | 352 | 2024 | 0.740 | 0.151 | 1.082 | 0.983 | 0.005 | 0.032 | 0.032 | 568.300 | 0.013 | 568.7 |
| | Welder | 4 | 5 | 2 | 44 | 352 | 2024 | 0.450 | 0.690 | 4.316 | 3.499 | 0.008 | 0.188 | 0.188 | 568.299 | 0.062 | 570.0 |
| | Compressor | 2 | 250 | 5 | 44 | 440 | 2024 | 0.480 | 0.232 | 1.247 | 1.096 | 0.006 | 0.039 | 0.039 | 568.299 | 0.020 | 568.9 |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 44 | 440 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | 140 Ton Rail Crane | 1 | 300 | 5 | 44 | 220 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Generator | 6 | 85 | 6.4 | 63 | 2,419 | 2024 | 0.740 | 0.260 | 2.321 | 3.342 | 0.006 | 0.101 | 0.101 | 568.299 | 0.023 | 568.9 |
| | Power pack | 5 | 350 | 8 | 63 | 2,520 | 2024 | 0.740 | 0.151 | 1.082 | 0.983 | 0.005 | 0.032 | 0.032 | 568.300 | 0.013 | 568.7 |
| | Welder | 6 | 5 | 6.4 | 63 | 2,419 | 2024 | 0.450 | 0.690 | 4.316 | 3.499 | 0.008 | 0.188 | 0.188 | 568.299 | 0.062 | 570.0 |
| | Compressor | 6 | 250 | 8 | 63 | 3,024 | 2024 | 0.480 | 0.232 | 1.247 | 1.096 | 0.006 | 0.039 | 0.039 | 568.299 | 0.020 | 568.9 |
| | 200 ton Derrick Crane | 4 | 300 | 10 | 63 | 2,520 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | Long Reach Excavator on Barge | 1 | 450 | 4 | 63 | 252 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | 140 Ton Rail Crane | 1 | 300 | 8 | 63 | 504 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| Activity #6 Preparation for Culvert Demolition (2024) | Generator | 2 | 85 | 6.4 | 50 | 640 | 2024 | 0.740 | 0.260 | 2.321 | 3.342 | 0.006 | 0.101 | 0.101 | 568.299 | 0.023 | 568.9 |
| | Power pack | 2 | 350 | 6.4 | 50 | 640 | 2024 | 0.740 | 0.151 | 1.082 | 0.983 | 0.005 | 0.032 | 0.032 | 568.300 | 0.013 | 568.7 |
| | 50 Ton Crawler Crane | 1 | 200 | 7.2 | 50 | 360 | 2024 | 0.290 | 0.281 | 2.966 | 1.502 | 0.005 | 0.123 | 0.114 | 472.964 | 0.153 | 477.2 |
| | Welder | 4 | 5 | 6.4 | 50 | 1,280 | 2024 | 0.450 | 0.690 | 4.316 | 3.499 | 0.008 | 0.188 | 0.188 | 568.299 | 0.062 | 570.0 |
| | Compressor | 2 | 250 | 8 | 50 | 800 | 2024 | 0.480 | 0.232 | 1.247 | 1.096 | 0.006 | 0.039 | 0.039 | 568.299 | 0.020 | 568.9 |
| | 200 ton Derrick Crane | 1 | 300 | 4.8 | 50 | 240 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | 140 Ton Crawler Crane | 1 | 350 | 6.4 | 50 | 320 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | 1466 Long Reach Excavator | 2 | 400 | 6 | 50 | 600 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | Floating Long Reach Excavator | 1 | 400 | 6 | 50 | 300 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | Cat D6 Bulldozer | 2 | 350 | 6 | 50 | 600 | 2024 | 0.400 | 0.417 | 4.030 | 3.457 | 0.005 | 0.182 | 0.168 | 479.394 | 0.155 | 483.7 |
| | Front End Loader | 4 | 300 | 6 | 50 | 1,200 | 2024 | 0.370 | 0.150 | 1.163 | 1.277 | 0.005 | 0.044 | 0.041 | 470.084 | 0.152 | 474.3 |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | 50 Ton Crane | 2 | 300 | 3.2 | 35 | 224 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | D4 Dozer | 1 | 300 | 3.2 | 35 | 112 | 2024 | 0.400 | 0.417 | 4.030 | 3.457 | 0.005 | 0.182 | 0.168 | 479.394 | 0.155 | 483.7 |
| | Cat 350 Excavator | 2 | 350 | 6 | 35 | 420 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | Cat 966 Loader | 2 | 350 | 6.4 | 35 | 448 | 2024 | 0.370 | 0.150 | 1.163 | 1.277 | 0.005 | 0.044 | 0.041 | 470.084 | 0.152 | 474.3 |
| | Compressor | 2 | 250 | 6.4 | 35 | 448 | 2024 | 0.480 | 0.232 | 1.247 | 1.096 | 0.006 | 0.039 | 0.039 | 568.299 | 0.020 | 568.9 |
| | Generator | 2 | 85 | 6.4 | 35 | 448 | 2024 | 0.740 | 0.260 | 2.321 | 3.342 | 0.006 | 0.101 | 0.101 | 568.299 | 0.023 | 568.9 |
| | 100 Ton Crawler Crane | 1 | 350 | 8 | 43 | 344 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 43 | 344 | 2024 | 0.200 | 0.300 | 2.814 | 3.629 | 0.005 | 0.163 | 0.150 | 471.529 | 0.153 | 475.8 |
| | Concrete Crusher | 1 | 225 | 8 | 43 | 344 | 2024 | 0.780 | 0.236 | 1.165 | 1.109 | 0.006 | 0.036 | 0.036 | 568.299 | 0.021 | 568.9 |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 43 | 688 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 35 | 350 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | 140 Ton Crawler Crane | 2 | 350 | 3.6 | 35 | 252 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | 50 Ton Crane | 1 | 300 | 4 | 100 | 400 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | D4 Dozer | 1 | 300 | 2 | 100 | 200 | 2024 | 0.400 | 0.417 | 4.030 | 3.457 | 0.005 | 0.182 | 0.168 | 479.394 | 0.155 | 483.7 |
| | Cat 350 Excavator | 1 | 350 | 3.2 | 100 | 320 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | Cat 966 Loader | 1 | 350 | 4 | 100 | 400 | 2024 | 0.370 | 0.150 | 1.163 | 1.277 | 0.005 | 0.044 | 0.041 | 470.084 | 0.152 | 474.3 |
| | Compressor | 1 | 250 | 6 | 100 | 600 | 2024 | 0.480 | 0.232 | 1.247 | 1.096 | 0.006 | 0.039 | 0.039 | 568.299 | 0.020 | 568.9 |
| | Generator | 1 | 85 | 5.6 | 100 | 560 | 2024 | 0.740 | 0.260 | 2.321 | 3.342 | 0.006 | 0.101 | 0.101 | 568.299 | 0.023 | 568.9 |
| | Water truck | 1 | 400 | 6 | 100 | 600 | 2024 | 0.380 | 0.184 | 1.235 | 1.206 | 0.005 | 0.044 | 0.041 | 475.220 | 0.154 | 479.5 |
| | 140 Ton Crawler Crane | 1 | 350 | 4 | 100 | 400 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| Activity #10 Concrete Disposal (2023, 2024) | 100 Ton Crawler Crane | 1 | 350 | 8 | 132 | 1,056 | 2024 | 0.290 | 0.231 | 2.383 | 1.933 | 0.005 | 0.096 | 0.089 | 472.066 | 0.153 | 476.4 |
| | 50 Ton Fork Lift | 1 | 90 | 8 | 132 | 1,056 | 2024 | 0.200 | 0.300 | 2.814 | 3.629 | 0.005 | 0.163 | 0.150 | 471.529 | 0.153 | 475.8 |
| | Concrete Crusher | 1 | 225 | 8 | 132 | 1,056 | 2024 | 0.780 | 0.236 | 1.165 | 1.109 | 0.006 | 0.036 | 0.036 | 568.299 | 0.021 | 568.9 |
| | Cat 966 Front End Loader | 1 | 260 | 8 | 132 | 1,056 | 2024 | 0.370 | 0.150 | 1.163 | 1.277 | 0.005 | 0.044 | 0.041 | 470.084 | 0.152 | 474.3 |
| | Excavator with Hoe Ram | 2 | 350 | 8 | 132 | 2,112 | 2024 | 0.380 | 0.121 | 0.831 | 1.054 | 0.005 | 0.029 | 0.026 | 469.711 | 0.152 | 474.0 |
| | 20 Ton End Dump Truck | 2 | 320 | 8 | 132 | 2,112 | 2024 | 0.380 | 0.184 | 1.235 | 1.206 | 0.005 | 0.044 | 0.041 | 475.220 | 0.154 | 479.5 |

Assumptions:
CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014)

CO2 1
CH4 28
N2O 265

Note:
Load factor and emission factors are from CalEEMod Appendix D: Table 3.4 Offroad Equipment Emission Factors (g/hp-hr) and Table 3.3 OFFROAD Default Horsepower and Load Factors (October 2017).

**Offshore - Full Removal of Conduits**
**Table 2.7c Construction Equipment Emissions 2024**
**Construction year** 2024

**Construction Emissions - Offroad Equipment Emissions in San Diego Air Pollution Control District (SDAPCD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 0.72 | 6.44 | 9.27 | 0.02 | 0.28 | 0.28 | 1577.89 | 0.016 | 0.142 | 0.204 | 0.000 | 0.006 | 0.006 | 34.714 |
| | Power pack | 0.69 | 4.94 | 4.49 | 0.02 | 0.15 | 0.15 | 2597.60 | 0.015 | 0.109 | 0.099 | 0.001 | 0.003 | 0.003 | 57.147 |
| | Welder | 0.03 | 0.17 | 0.14 | 0.00 | 0.01 | 0.01 | 22.62 | 0.001 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.498 |
| | Compressor | 0.61 | 3.30 | 2.90 | 0.02 | 0.10 | 0.10 | 1504.92 | 0.014 | 0.073 | 0.064 | 0.000 | 0.002 | 0.002 | 33.108 |
| | 200 ton Derrick Crane | 0.44 | 4.57 | 3.71 | 0.01 | 0.18 | 0.17 | 913.64 | 0.010 | 0.101 | 0.082 | 0.000 | 0.004 | 0.004 | 20.100 |
| | 140 Ton Rail Crane | 0.22 | 2.29 | 1.85 | 0.00 | 0.09 | 0.09 | 456.82 | 0.005 | 0.050 | 0.041 | 0.000 | 0.002 | 0.002 | 10.050 |
| | Subtotal Activity #4 2024 | 2.72 | 21.71 | 22.36 | 0.07 | 0.81 | 0.79 | 7073.48 | 0.06 | 0.48 | 0.49 | 0.00 | 0.02 | 0.02 | 155.62 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Generator | 1.38 | 12.36 | 17.80 | 0.03 | 0.54 | 0.54 | 3029.55 | 0.044 | 0.389 | 0.561 | 0.001 | 0.017 | 0.017 | 95.431 |
| | Power pack | 3.45 | 24.71 | 22.45 | 0.11 | 0.73 | 0.73 | 12988.00 | 0.109 | 0.778 | 0.707 | 0.004 | 0.023 | 0.023 | 409.122 |
| | Welder | 0.13 | 0.82 | 0.67 | 0.00 | 0.04 | 0.04 | 108.58 | 0.004 | 0.026 | 0.021 | 0.000 | 0.001 | 0.001 | 3.420 |
| | Compressor | 2.95 | 15.83 | 13.92 | 0.08 | 0.50 | 0.50 | 7223.61 | 0.093 | 0.499 | 0.438 | 0.002 | 0.016 | 0.016 | 227.544 |
| | 200 ton Derrick Crane | 1.77 | 18.28 | 14.83 | 0.04 | 0.74 | 0.68 | 3654.54 | 0.056 | 0.576 | 0.467 | 0.001 | 0.023 | 0.022 | 115.118 |
| | Long Reach Excavator on Barge | 0.18 | 1.25 | 1.59 | 0.01 | 0.04 | 0.04 | 714.71 | 0.006 | 0.039 | 0.050 | 0.000 | 0.001 | 0.001 | 22.513 |
| | 140 Ton Rail Crane | 0.35 | 3.66 | 2.97 | 0.01 | 0.15 | 0.14 | 730.91 | 0.011 | 0.115 | 0.093 | 0.000 | 0.005 | 0.004 | 23.024 |
| | Subtotal Activity #5 2024 | 10.22 | 76.92 | 74.21 | 0.28 | 2.73 | 2.66 | 28449.90 | 0.32 | 2.42 | 2.34 | 0.01 | 0.09 | 0.08 | 896.17 |
| Activity #6 Preparation for Culvert Demolition (2024) | Generator | 0.46 | 4.12 | 5.93 | 0.01 | 0.18 | 0.18 | 1009.85 | 0.012 | 0.103 | 0.148 | 0.000 | 0.004 | 0.004 | 25.246 |
| | Power pack | 1.10 | 7.91 | 7.18 | 0.04 | 0.23 | 0.23 | 4156.16 | 0.028 | 0.198 | 0.180 | 0.001 | 0.006 | 0.006 | 103.904 |
| | 50 Ton Crawler Crane | 0.26 | 2.73 | 1.38 | 0.00 | 0.11 | 0.10 | 439.37 | 0.006 | 0.068 | 0.035 | 0.000 | 0.003 | 0.003 | 10.984 |
| | Welder | 0.09 | 0.55 | 0.44 | 0.00 | 0.02 | 0.02 | 72.39 | 0.002 | 0.014 | 0.011 | 0.000 | 0.001 | 0.001 | 1.810 |
| | Compressor | 0.98 | 5.28 | 4.64 | 0.03 | 0.17 | 0.17 | 2407.87 | 0.025 | 0.132 | 0.116 | 0.001 | 0.004 | 0.004 | 60.197 |
| | 200 ton Derrick Crane | 0.21 | 2.19 | 1.78 | 0.00 | 0.09 | 0.08 | 438.54 | 0.005 | 0.055 | 0.044 | 0.000 | 0.002 | 0.002 | 10.964 |
| | 140 Ton Crawler Crane | 0.33 | 3.41 | 2.77 | 0.01 | 0.14 | 0.13 | 682.18 | 0.008 | 0.085 | 0.069 | 0.000 | 0.003 | 0.003 | 17.055 |
| | 1466 Long Reach Excavator | 0.49 | 3.34 | 4.24 | 0.02 | 0.12 | 0.10 | 1905.90 | 0.012 | 0.084 | 0.106 | 0.001 | 0.003 | 0.003 | 47.647 |
| | Floating Long Reach Excavator | 0.24 | 1.67 | 2.12 | 0.01 | 0.06 | 0.05 | 952.95 | 0.006 | 0.042 | 0.053 | 0.000 | 0.001 | 0.001 | 23.824 |
| | Cat D6 Bulldozer | 1.54 | 14.93 | 12.81 | 0.02 | 0.67 | 0.62 | 1791.61 | 0.039 | 0.373 | 0.320 | 0.000 | 0.017 | 0.016 | 44.790 |
| | Front End Loader | 0.88 | 6.83 | 7.50 | 0.03 | 0.26 | 0.24 | 2785.81 | 0.022 | 0.171 | 0.187 | 0.001 | 0.006 | 0.006 | 69.645 |
| | Subtotal Activity #6 2024 | 6.59 | 52.96 | 50.79 | 0.17 | 2.05 | 1.94 | 16642.62 | 0.16 | 1.32 | 1.27 | 0.00 | 0.05 | 0.05 | 416.07 |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | 50 Ton Crane | 0.28 | 2.93 | 2.37 | 0.01 | 0.12 | 0.11 | 584.73 | 0.005 | 0.051 | 0.042 | 0.000 | 0.002 | 0.002 | 10.233 |
| | D4 Dozer | 0.35 | 3.41 | 2.93 | 0.00 | 0.15 | 0.14 | 409.51 | 0.006 | 0.060 | 0.051 | 0.000 | 0.003 | 0.002 | 7.166 |
| | Cat 350 Excavator | 0.43 | 2.92 | 3.71 | 0.02 | 0.10 | 0.09 | 1667.66 | 0.007 | 0.051 | 0.065 | 0.000 | 0.002 | 0.002 | 29.184 |
| | Cat 966 Loader | 0.55 | 4.25 | 4.67 | 0.02 | 0.16 | 0.15 | 1733.39 | 0.010 | 0.074 | 0.082 | 0.000 | 0.003 | 0.003 | 30.334 |
| | Compressor | 0.79 | 4.22 | 3.71 | 0.02 | 0.13 | 0.13 | 1926.30 | 0.014 | 0.074 | 0.065 | 0.000 | 0.002 | 0.002 | 33.710 |
| | Generator | 0.46 | 4.12 | 5.93 | 0.01 | 0.18 | 0.18 | 1009.85 | 0.008 | 0.072 | 0.104 | 0.000 | 0.003 | 0.003 | 17.672 |
| | 100 Ton Crawler Crane | 0.41 | 4.27 | 3.46 | 0.01 | 0.17 | 0.16 | 852.73 | 0.009 | 0.092 | 0.074 | 0.000 | 0.004 | 0.003 | 18.334 |
| | 50 Ton Fork Lift | 0.10 | 0.89 | 1.15 | 0.00 | 0.05 | 0.05 | 151.05 | 0.002 | 0.019 | 0.025 | 0.000 | 0.001 | 0.001 | 3.248 |
| | Concrete Crusher | 0.73 | 3.61 | 3.43 | 0.02 | 0.11 | 0.11 | 1760.84 | 0.016 | 0.078 | 0.074 | 0.000 | 0.002 | 0.002 | 37.858 |
| | Excavator with Hoe Ram | 0.57 | 3.90 | 4.94 | 0.02 | 0.14 | 0.12 | 2223.55 | 0.012 | 0.084 | 0.106 | 0.001 | 0.003 | 0.003 | 47.806 |
| | 200 ton Derrick Crane | 0.44 | 4.57 | 3.71 | 0.01 | 0.18 | 0.17 | 913.64 | 0.008 | 0.080 | 0.065 | 0.000 | 0.003 | 0.003 | 15.989 |
| | 140 Ton Crawler Crane | 0.37 | 3.84 | 3.11 | 0.01 | 0.15 | 0.14 | 767.45 | 0.007 | 0.067 | 0.054 | 0.000 | 0.003 | 0.003 | 13.430 |
| | Subtotal Activity #7 2024 | 5.48 | 42.93 | 43.12 | 0.15 | 1.66 | 1.56 | 14000.69 | 0.10 | 0.80 | 0.81 | 0.00 | 0.03 | 0.03 | 264.96 |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | 50 Ton Crane | 0.18 | 1.83 | 1.48 | 0.00 | 0.07 | 0.07 | 365.45 | 0.009 | 0.091 | 0.074 | 0.000 | 0.004 | 0.003 | 18.273 |
| | D4 Dozer | 0.22 | 2.13 | 1.83 | 0.00 | 0.10 | 0.09 | 255.94 | 0.011 | 0.107 | 0.091 | 0.000 | 0.005 | 0.004 | 12.797 |
| | Cat 350 Excavator | 0.11 | 0.78 | 0.99 | 0.00 | 0.03 | 0.02 | 444.71 | 0.006 | 0.039 | 0.049 | 0.000 | 0.001 | 0.001 | 22.235 |
| | Cat 966 Loader | 0.17 | 1.33 | 1.46 | 0.01 | 0.05 | 0.05 | 541.68 | 0.009 | 0.066 | 0.073 | 0.000 | 0.003 | 0.002 | 27.084 |
| | Compressor | 0.37 | 1.98 | 1.74 | 0.01 | 0.06 | 0.06 | 902.95 | 0.018 | 0.099 | 0.087 | 0.000 | 0.003 | 0.003 | 45.148 |
| | Generator | 0.20 | 1.80 | 2.60 | 0.00 | 0.08 | 0.08 | 441.81 | 0.010 | 0.090 | 0.130 | 0.000 | 0.004 | 0.004 | 22.090 |
| | Water truck | 0.37 | 2.48 | 2.43 | 0.01 | 0.09 | 0.08 | 964.14 | 0.018 | 0.124 | 0.121 | 0.001 | 0.004 | 0.004 | 48.207 |
| | 140 Ton Crawler Crane | 0.21 | 2.13 | 1.73 | 0.00 | 0.09 | 0.08 | 426.36 | 0.010 | 0.107 | 0.086 | 0.000 | 0.004 | 0.004 | 21.318 |
| | Subtotal Activity #8 2024 | 1.83 | 14.47 | 14.25 | 0.05 | 0.56 | 0.53 | 4343.05 | 0.09 | 0.72 | 0.71 | 0.00 | 0.03 | 0.03 | 217.15 |

**Offshore - Full Removal of Conduits**
**Table 2.7c Construction Equipment Emissions 2024**
**Construction year** 2024
**Construction Emissions - Offroad Equipment Emissions in South Coast Air Quality Management District (SCAQMD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #10 Concrete Disposal (2023, 2024) | 100 Ton Crawler Crane | 0.41 | 4.27 | 3.46 | 0.01 | 0.17 | 0.16 | 852.73 | 0.027 | 0.282 | 0.228 | 0.001 | 0.011 | 0.011 | 56.280 |
| | 50 Ton Fork Lift | 0.10 | 0.89 | 1.15 | 0.00 | 0.05 | 0.05 | 151.05 | 0.006 | 0.059 | 0.076 | 0.000 | 0.003 | 0.003 | 9.969 |
| | Concrete Crusher | 0.73 | 3.61 | 3.43 | 0.02 | 0.11 | 0.11 | 1760.84 | 0.048 | 0.238 | 0.227 | 0.001 | 0.007 | 0.007 | 116.215 |
| | Cat 966 Front End Loader | 0.25 | 1.97 | 2.17 | 0.01 | 0.07 | 0.07 | 804.79 | 0.017 | 0.130 | 0.143 | 0.001 | 0.005 | 0.005 | 53.116 |
| | Excavator with Hoe Ram | 0.57 | 3.90 | 4.94 | 0.02 | 0.14 | 0.12 | 2223.55 | 0.037 | 0.257 | 0.326 | 0.002 | 0.009 | 0.008 | 146.754 |
| | 20 Ton End Dump Truck | 0.79 | 5.30 | 5.17 | 0.02 | 0.19 | 0.18 | 2056.83 | 0.052 | 0.350 | 0.342 | 0.001 | 0.012 | 0.012 | 135.751 |
| | Subtotal Activity #10 2024 | 2.85 | 19.94 | 20.33 | 0.08 | 0.73 | 0.69 | 7849.78 | 0.19 | 1.32 | 1.34 | 0.01 | 0.05 | 0.05 | 518.09 |

**Offshore - Full Removal of Conduits**
**Table 2.7d Construction Equipment Emissions 2025**
**Construction year** 2025

**Construction Equipment Information**

| Activity # | Offroad Equipment Name | | per Equipment | | | Notes |
|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per Day | Number of Days | |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025 | Generator | 4 | 85 | 5 | 22 | SONGS Site |
| | Power pack | 2 | 350 | 4 | 22 | SONGS Site |
| | Welder | 4 | 5 | 2 | 22 | SONGS Site |
| | Compressor | 2 | 250 | 5 | 22 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 22 | SONGS Site |
| | 140 Ton Rail Crane | 1 | 300 | 5 | 22 | SONGS Site |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | 50 Ton Crane | 1 | 300 | 4 | 20 | SONGS Site |
| | D4 Dozer | 1 | 300 | 2 | 20 | SONGS Site |
| | Cat 350 Excavator | 1 | 350 | 3.2 | 20 | SONGS Site |
| | Cat 966 Loader | 1 | 350 | 4 | 20 | SONGS Site |
| | Compressor | 1 | 250 | 6 | 20 | SONGS Site |
| | Generator | 1 | 85 | 5.6 | 20 | SONGS Site |
| | Water truck | 1 | 400 | 6 | 20 | SONGS Site |
| | 140 Ton Crawler Crane | 1 | 350 | 4 | 20 | SONGS Site |
| Activity #9 Project Demobilization (2025) | Welding Set | 1 | 10 | 8 | 10 | SONGS Site |
| | 60KW Generator | 1 | 85 | 8 | 10 | SONGS Site |
| | Long reach excavator - 96' | 1 | 400 | 3.2 | 10 | SONGS Site |
| | 100 Ton Crawler Crane | 2 | 350 | 8 | 10 | SONGS Site |
| | 50 Ton Fork Lift | 3 | 90 | 8 | 10 | SONGS Site |
| | Cat 966 Front End Loader | 2 | 260 | 8 | 22 | SONGS Site |
| | Winch Motors | 4 | 50 | 8 | 10 | SONGS Site |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 16 | SONGS Site |

Note:
Equipment usage data were provided by SCE on 3/24/2017.

**Offshore - Full Removal of Conduits**

**Table 2.7d Construction Equipment Emissions 2025**

**Construction year** 2025

**Equipment Information and Emission Factors**

| Activities | Equipment | per equipment | | | | | Emission | CalEEMod | CalEEMod Emission Factors (100% load) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Equipment | HP | Hours per day | Days per year | Hours per Year | Factor Year | Default Load | ROG g/hp-hr | NOx g/hp-hr | CO g/hp-hr | SO2 g/hp-hr | PM10 g/hp-hr | PM2.5 g/hp-hr | CO2 g/hp-hr | CH4 g/hp-hr | CO2e g/hp-hr |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 4 | 85 | 5 | 22 | 440 | 2025 | 0.740 | 0.243 | 2.185 | 3.338 | 0.006 | 0.087 | 0.087 | 568.299 | 0.021 | 568.9 |
| | Power pack | 2 | 350 | 4 | 22 | 176 | 2025 | 0.740 | 0.144 | 0.945 | 0.981 | 0.005 | 0.027 | 0.027 | 568.300 | 0.013 | 568.7 |
| | Welder | 4 | 5 | 2 | 22 | 176 | 2025 | 0.450 | 0.683 | 4.278 | 3.491 | 0.008 | 0.183 | 0.183 | 568.300 | 0.061 | 570.0 |
| | Compressor | 2 | 250 | 5 | 22 | 220 | 2025 | 0.480 | 0.220 | 1.086 | 1.094 | 0.006 | 0.033 | 0.033 | 568.299 | 0.019 | 568.8 |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 22 | 220 | 2025 | 0.290 | 0.218 | 2.154 | 1.834 | 0.005 | 0.088 | 0.081 | 471.967 | 0.153 | 476.3 |
| | 140 Ton Rail Crane | 1 | 300 | 5 | 22 | 110 | 2025 | 0.290 | 0.218 | 2.154 | 1.834 | 0.005 | 0.088 | 0.081 | 471.967 | 0.153 | 476.3 |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | 50 Ton Crane | 1 | 300 | 4 | 20 | 80 | 2025 | 0.290 | 0.218 | 2.154 | 1.834 | 0.005 | 0.088 | 0.081 | 471.967 | 0.153 | 476.3 |
| | D4 Dozer | 1 | 300 | 2 | 20 | 40 | 2025 | 0.400 | 0.367 | 3.370 | 2.959 | 0.005 | 0.151 | 0.139 | 479.092 | 0.155 | 483.4 |
| | Cat 350 Excavator | 1 | 350 | 3.2 | 20 | 64 | 2025 | 0.380 | 0.115 | 0.726 | 1.051 | 0.005 | 0.026 | 0.024 | 470.292 | 0.152 | 474.5 |
| | Cat 966 Loader | 1 | 350 | 4 | 20 | 80 | 2025 | 0.370 | 0.144 | 1.046 | 1.234 | 0.005 | 0.039 | 0.036 | 470.910 | 0.152 | 475.2 |
| | Compressor | 1 | 250 | 6 | 20 | 120 | 2025 | 0.480 | 0.220 | 1.086 | 1.094 | 0.006 | 0.033 | 0.033 | 568.299 | 0.019 | 568.8 |
| | Generator | 1 | 85 | 5.6 | 20 | 112 | 2025 | 0.740 | 0.243 | 2.185 | 3.338 | 0.006 | 0.087 | 0.087 | 568.299 | 0.021 | 568.9 |
| | Water truck | 1 | 400 | 6 | 20 | 120 | 2025 | 0.380 | 0.177 | 1.064 | 1.182 | 0.005 | 0.038 | 0.035 | 474.970 | 0.154 | 479.3 |
| | 140 Ton Crawler Crane | 1 | 350 | 4 | 20 | 80 | 2025 | 0.290 | 0.218 | 2.154 | 1.834 | 0.005 | 0.088 | 0.081 | 471.967 | 0.153 | 476.3 |
| Activity #9 Project Demobilization (2025) | Welding Set | 1 | 10 | 8 | 10 | 80 | 2025 | 0.450 | 0.683 | 4.278 | 3.491 | 0.008 | 0.183 | 0.183 | 568.300 | 0.061 | 570.0 |
| | 60KW Generator | 1 | 85 | 8 | 10 | 80 | 2025 | 0.740 | 0.243 | 2.185 | 3.338 | 0.006 | 0.087 | 0.087 | 568.299 | 0.021 | 568.9 |
| | Long reach excavator - 96' | 1 | 400 | 3.2 | 10 | 32 | 2025 | 0.380 | 0.115 | 0.726 | 1.051 | 0.005 | 0.026 | 0.024 | 470.292 | 0.152 | 474.5 |
| | 100 Ton Crawler Crane | 2 | 350 | 8 | 10 | 160 | 2025 | 0.290 | 0.218 | 2.154 | 1.834 | 0.005 | 0.088 | 0.081 | 471.967 | 0.153 | 476.3 |
| | 50 Ton Fork Lift | 3 | 90 | 8 | 10 | 240 | 2025 | 0.200 | 0.277 | 2.607 | 3.611 | 0.005 | 0.140 | 0.128 | 471.529 | 0.153 | 475.8 |
| | Cat 966 Front End Loader | 2 | 260 | 8 | 22 | 352 | 2025 | 0.370 | 0.144 | 1.046 | 1.234 | 0.005 | 0.039 | 0.036 | 470.910 | 0.152 | 475.2 |
| | Winch Motors | 4 | 50 | 8 | 10 | 320 | 2025 | 0.420 | 0.757 | 4.306 | 4.874 | 0.005 | 0.268 | 0.246 | 528.954 | 0.171 | 533.7 |
| | 200 ton Derrick Crane | 1 | 300 | 10 | 16 | 160 | 2025 | 0.290 | 0.218 | 2.154 | 1.834 | 0.005 | 0.088 | 0.081 | 471.967 | 0.153 | 476.3 |

Assumptions:

CO2e were calculated using the following global warming potential (GWP, 100-year GWP from IPCC Fifth Assessment Report , 2014

| | |
|---|---|
| CO2 | 1 |
| CH4 | 28 |
| N2O | 265 |

Note:

Load factor and emission factors are from CalEEMod Appendix D: Table 3.4 Offroad Equipment Emission Factors (g/hp-hr) and Table 3.3 OFFROAD Default Horsepower and Load Factors (October 2017

**Offshore - Full Removal of Conduits**
**Table 2.7d Construction Equipment Emissions 2025**
**Construction year** 2025

**Construction Emissions - Offroad Equipment Emissions in San Diego Air Pollution Control District (SDAPCD)**

| Activity | Equipment | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Generator | 0.67 | 6.06 | 9.26 | 0.02 | 0.24 | 0.24 | 1577.73 | 0.007 | 0.067 | 0.102 | 0.000 | 0.003 | 0.003 | 17.355 |
| | Power pack | 0.66 | 4.32 | 4.48 | 0.02 | 0.12 | 0.12 | 2597.60 | 0.007 | 0.047 | 0.049 | 0.000 | 0.001 | 0.001 | 28.574 |
| | Welder | 0.03 | 0.17 | 0.14 | 0.00 | 0.01 | 0.01 | 22.62 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.249 |
| | Compressor | 0.58 | 2.87 | 2.89 | 0.02 | 0.09 | 0.09 | 1504.84 | 0.006 | 0.032 | 0.032 | 0.000 | 0.001 | 0.001 | 16.553 |
| | 200 ton Derrick Crane | 0.42 | 4.13 | 3.52 | 0.01 | 0.17 | 0.16 | 913.44 | 0.005 | 0.045 | 0.039 | 0.000 | 0.002 | 0.002 | 10.048 |
| | 140 Ton Rail Crane | 0.21 | 2.07 | 1.76 | 0.00 | 0.08 | 0.08 | 456.72 | 0.002 | 0.023 | 0.019 | 0.000 | 0.001 | 0.001 | 5.024 |
| | Subtotal Activity #4 2025 | 2.57 | 19.62 | 22.05 | 0.07 | 0.71 | 0.69 | 7072.96 | 0.03 | 0.22 | 0.24 | 0.00 | 0.01 | 0.01 | 77.80 |
| Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025) | 50 Ton Crane | 0.17 | 1.65 | 1.41 | 0.00 | 0.07 | 0.06 | 365.38 | 0.002 | 0.017 | 0.014 | 0.000 | 0.001 | 0.001 | 3.654 |
| | D4 Dozer | 0.19 | 1.78 | 1.57 | 0.00 | 0.08 | 0.07 | 255.78 | 0.002 | 0.018 | 0.016 | 0.000 | 0.001 | 0.001 | 2.558 |
| | Cat 350 Excavator | 0.11 | 0.68 | 0.99 | 0.00 | 0.02 | 0.02 | 445.25 | 0.001 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 4.453 |
| | Cat 966 Loader | 0.16 | 1.19 | 1.41 | 0.01 | 0.04 | 0.04 | 542.63 | 0.002 | 0.012 | 0.014 | 0.000 | 0.000 | 0.000 | 5.426 |
| | Compressor | 0.35 | 1.72 | 1.74 | 0.01 | 0.05 | 0.05 | 902.91 | 0.003 | 0.017 | 0.017 | 0.000 | 0.001 | 0.001 | 9.029 |
| | Generator | 0.19 | 1.70 | 2.59 | 0.00 | 0.07 | 0.07 | 441.77 | 0.002 | 0.017 | 0.026 | 0.000 | 0.001 | 0.001 | 4.418 |
| | Water truck | 0.36 | 2.14 | 2.38 | 0.01 | 0.08 | 0.07 | 963.64 | 0.004 | 0.021 | 0.024 | 0.000 | 0.001 | 0.001 | 9.636 |
| | 140 Ton Crawler Crane | 0.20 | 1.93 | 1.64 | 0.00 | 0.08 | 0.07 | 426.27 | 0.002 | 0.019 | 0.016 | 0.000 | 0.001 | 0.001 | 4.263 |
| | Subtotal Activity #8 2025 | 1.72 | 12.80 | 13.71 | 0.05 | 0.49 | 0.46 | 4343.63 | 0.02 | 0.13 | 0.14 | 0.00 | 0.00 | 0.00 | 43.44 |
| Activity #9 Project Demobilization (2025) | Welding Set | 0.05 | 0.34 | 0.28 | 0.00 | 0.01 | 0.01 | 45.10 | 0.000 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 | 0.226 |
| | 60KW Generator | 0.27 | 2.42 | 3.70 | 0.01 | 0.10 | 0.10 | 630.44 | 0.001 | 0.012 | 0.019 | 0.000 | 0.000 | 0.000 | 3.152 |
| | Long reach excavator - 96' | 0.12 | 0.78 | 1.13 | 0.01 | 0.03 | 0.03 | 504.30 | 0.001 | 0.004 | 0.006 | 0.000 | 0.000 | 0.000 | 2.521 |
| | 100 Ton Crawler Crane | 0.78 | 7.71 | 6.56 | 0.02 | 0.32 | 0.29 | 1689.76 | 0.004 | 0.039 | 0.033 | 0.000 | 0.002 | 0.001 | 8.449 |
| | 50 Ton Fork Lift | 0.26 | 2.48 | 3.44 | 0.00 | 0.13 | 0.12 | 449.07 | 0.001 | 0.012 | 0.017 | 0.000 | 0.001 | 0.001 | 2.245 |
| | Cat 966 Front End Loader | 0.49 | 3.55 | 4.19 | 0.02 | 0.13 | 0.12 | 1597.94 | 0.005 | 0.039 | 0.046 | 0.000 | 0.001 | 0.001 | 17.577 |
| | Winch Motors | 1.12 | 6.38 | 7.22 | 0.01 | 0.40 | 0.36 | 783.63 | 0.006 | 0.032 | 0.036 | 0.000 | 0.002 | 0.002 | 3.918 |
| | 200 ton Derrick Crane | 0.42 | 4.13 | 3.52 | 0.01 | 0.17 | 0.16 | 905.23 | 0.003 | 0.033 | 0.028 | 0.000 | 0.001 | 0.001 | 7.242 |
| | Subtotal Activity #9 2025 | 3.52 | 27.80 | 30.04 | 0.07 | 1.29 | 1.19 | 6605.48 | 0.02 | 0.17 | 0.19 | 0.00 | 0.01 | 0.01 | 45.33 |

**Offshore - Full Removal of Conduits**
**Table 2.8a Construction Emissions - Vehicles 2022**

**Vehicle Trip Information**

| Activities | Equipment Name | Vehicle Trips | | | | | Total Vehicle Miles Traveled | | Vehicle Miles Traveled in SDAPCD | | Vehicle Miles Traveled in SCAQMD | | Route Information |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of trips per day | Number of days/activity | Round Trip distance (miles/trip) | Trip distance in SDAPCD (miles/trip) | Round Trip distance in SCAQMD (miles/trip) | Miles/day | Miles/ year | Miles/ day | Miles/year | Miles/ day | Miles/ year | |
| Activity #1 Onshore Bulkhead Work (2022) | Flatbed Truck - 5 Ton | 10 | 20 | 2 | 2.0 | 0.0 | 20 | 400 | 20 | 400 | 0 | 0 | Onsite |
| | Pickup Truck | 10 | 20 | 2 | 2.0 | 0.0 | 20 | 400 | 20 | 400 | 0 | 0 | Onsite |
| | Transport Truck - 40' | 1 | 4 | 100 | 5.2 | 94.8 | 100 | 400 | 5 | 21 | 95 | 379 | Between SONGS and Orange County |
| | Dump Truck - 20 Ton | 2 | 20 | 10 | 0.0 | 10.0 | 20 | 400 | 0 | 0 | 20 | 400 | Between SONGS and Orange County |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Low Bed Transport Truck | 5 | 20 | 50 | 5.2 | 44.8 | 250 | 5,000 | 26 | 520 | 224 | 4,480 | Between SONGS and Orange County |
| | F250 Work Truck | 5 | 20 | 30 | 5.2 | 24.8 | 150 | 3,000 | 26 | 520 | 124 | 2,480 | Between SONGS and Orange County |
| | F150 Work Truck | 1 | 20 | 30 | 5.2 | 24.8 | 30 | 600 | 5 | 104 | 25 | 496 | Between SONGS and Orange County |
| | 5 Ton Flabed Truck | 4 | 5 | 30 | 5.2 | 24.8 | 120 | 600 | 21 | 104 | 99 | 496 | Between SONGS and Orange County |
| | Worker Commute | 20 | 22 | 30 | 0.0 | 30.0 | 600 | 13,200 | 0 | 0 | 600 | 13,200 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #3 Trestle Material Supply (2022, 2023) | Flatbed truck | 9 | 22 | 50 | 0.0 | 50.0 | 450 | 9,900 | 0 | 0 | 450 | 9,900 | within SCAQMD, travel to POLB |
| | Pickup Truck | 2 | 9 | 50 | 5.2 | 44.8 | 100 | 900 | 10 | 94 | 90 | 806 | Between SONGS and Orange County |
| | Worker Commute | 0 | 22 | 0 | 0.0 | 30.0 | 0 | 0 | 0 | 0 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |

**Note**

1. Vehicle travel information was provided by SCE on 3/30/2017
2. Worker commute trips within SDAPCD traveling to SONGS site were set to zero because worker commute trips will not increase in comparison to baseline conditions (as of NOP)
3. End dump trucks were assumed to have a capacity of 20 ton/load.

**Vehicle Emission Factors 2022**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Commuting Vehicles | 0.120 | 0.083 | 0.943 | 0.003 | 0.047 | 0.020 | 298.045 |
| pickup | 0.357 | 0.176 | 2.014 | 0.003 | 0.048 | 0.021 | 335.513 |
| Haul trucks | 0.104 | 4.040 | 0.443 | 0.016 | 0.115 | 0.052 | 1640.843 |
| Work trucks | 0.642 | 2.281 | 2.431 | 0.007 | 0.105 | 0.053 | 670.516 |

Note:

Vehicle emission factors were obtained from EMFAC2014:

Region: Statewide
Calendar year: 2022
Speed and model year: aggregated
Haul trucks: assumed to be heavy-heavy duty single unit diesel truck.
Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM10, emissions also include tire wear and brake wear

**Offshore - Full Removal of Conduits**
**Table 2.8a Construction Emissions - Vehicles 2022**

**Vehicle Emissions - San Diego Air Pollution Control District (SDAPCD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work (2022) | Flatbed Truck - 5 Ton | 20 | 400 | 0.005 | 0.178 | 0.020 | 0.001 | 0.005 | 0.002 | 72.348 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.723 |
| | Pickup Truck | 20 | 400 | 0.016 | 0.008 | 0.089 | 0.000 | 0.002 | 0.001 | 14.793 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.148 |
| | Transport Truck - 40' | 5 | 21 | 0.001 | 0.046 | 0.005 | 0.000 | 0.001 | 0.001 | 18.810 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.038 |
| | Dump Truck - 20 Ton | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #1 2022 | | | 0.022 | 0.232 | 0.113 | 0.001 | 0.009 | 0.004 | 105.951 | 0.000 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 | 0.909 |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Low Bed Transport Truck | 26 | 520 | 0.006 | 0.232 | 0.025 | 0.001 | 0.007 | 0.003 | 94.052 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.941 |
| | F250 Work Truck | 26 | 520 | 0.037 | 0.131 | 0.139 | 0.000 | 0.006 | 0.003 | 38.433 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.384 |
| | F150 Work Truck | 5 | 104 | 0.007 | 0.026 | 0.028 | 0.000 | 0.001 | 0.001 | 7.687 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.077 |
| | 5 Ton Flabed Truck | 21 | 104 | 0.005 | 0.185 | 0.020 | 0.001 | 0.005 | 0.002 | 75.241 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.188 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #2 2022 | | | 0.055 | 0.574 | 0.213 | 0.002 | 0.019 | 0.009 | 215.413 | 0.001 | 0.004 | 0.002 | 0.000 | 0.000 | 0.000 | 1.590 |
| Activity #3 Trestle Material Supply (2022, 2023) | Flatbed truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Pickup Truck | 10 | 94 | 0.008 | 0.004 | 0.046 | 0.000 | 0.001 | 0.000 | 7.693 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.035 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2022 | | | 0.008 | 0.004 | 0.046 | 0.000 | 0.001 | 0.000 | 7.693 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.035 |

**Vehicle Emissions - South Coast Air Quality Management District (SCAQMD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work (2022) | Flatbed Truck - 5 Ton | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Pickup Truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Transport Truck - 40' | 95 | 379 | 0.022 | 0.844 | 0.093 | 0.003 | 0.024 | 0.011 | 342.928 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.686 |
| | Dump Truck - 20 Ton | 20 | 400 | 0.005 | 0.178 | 0.020 | 0.001 | 0.005 | 0.002 | 72.348 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.723 |
| | Subtotal Activity #1 2022 | | | 0.026 | 1.023 | 0.112 | 0.004 | 0.029 | 0.013 | 415.275 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 1.409 |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Low Bed Transport Truck | 224 | 4,480 | 0.051 | 1.995 | 0.219 | 0.008 | 0.057 | 0.026 | 810.293 | 0.001 | 0.020 | 0.002 | 0.000 | 0.001 | 0.000 | 8.103 |
| | F250 Work Truck | 124 | 2,480 | 0.176 | 0.624 | 0.664 | 0.002 | 0.029 | 0.015 | 183.298 | 0.002 | 0.006 | 0.007 | 0.000 | 0.000 | 0.000 | 1.833 |
| | F150 Work Truck | 25 | 496 | 0.035 | 0.125 | 0.133 | 0.000 | 0.006 | 0.003 | 36.660 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.367 |
| | 5 Ton Flabed Truck | 99 | 496 | 0.023 | 0.884 | 0.097 | 0.003 | 0.025 | 0.011 | 358.844 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.897 |
| | Worker Commute | 600 | 13,200 | 0.159 | 0.109 | 1.248 | 0.004 | 0.062 | 0.026 | 394.239 | 0.002 | 0.001 | 0.014 | 0.000 | 0.001 | 0.000 | 4.337 |
| | Subtotal Activity #2 2022 | | | 0.443 | 3.736 | 2.361 | 0.017 | 0.179 | 0.081 | 1783.334 | 0.004 | 0.031 | 0.024 | 0.000 | 0.002 | 0.001 | 15.536 |
| Activity #3 Trestle Material Supply (2022, 2023) | Flatbed truck | 450 | 9,900 | 0.103 | 4.008 | 0.439 | 0.016 | 0.114 | 0.052 | 1627.820 | 0.001 | 0.044 | 0.005 | 0.000 | 0.001 | 0.001 | 17.906 |
| | Pickup Truck | 90 | 806 | 0.070 | 0.035 | 0.398 | 0.001 | 0.010 | 0.004 | 66.274 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.298 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2022 | | | 0.174 | 4.043 | 0.837 | 0.016 | 0.124 | 0.056 | 1694.095 | 0.001 | 0.044 | 0.007 | 0.000 | 0.001 | 0.001 | 18.204 |

**Offshore - Full Removal of Conduits**
**Table 2.8b Construction Emissions - Vehicles 2023**

**Vehicle Trip Information**

| Activities | Equipment Name | Vehicle Trips | | | | | | Total Vehicle Miles Traveled | | Vehicle Miles Traveled in SDAPCD | | Vehicle Miles Traveled in SCAQMD | | Vehicle Miles Traveled in MDAQMD | | Route Information |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of trips per day | Number of days/ activity | Total Round Trip distance (miles/ trip) | Round Trip distance in SDAPCD (miles/ trip) | Round Trip distance in SCAQMD (miles/ trip) | Round Trip distance in MDAQMD (miles/ trip) | Miles/ day | Miles/ year | Miles/ day | Miles/ year | Miles/ day | Miles/ year | Miles/ day | Miles/ year | |
| Activity #3 Trestle Material Supply (2022, 2023) | Flatbed truck | 9 | 77.2 | 50 | 0.0 | 50.0 | 0 | 450 | 34,740 | 0 | 0 | 450 | 34,740 | 0 | 0 | within SCAQMD, travel to POLB |
| | Pickup Truck | 2 | 36 | 50 | 5.2 | 44.8 | 0 | 100 | 3,600 | 10 | 374 | 90 | 3,226 | 0 | 0 | Between SONGS and Orange County |
| | Worker Commute | 0 | 88 | 0 | 0.0 | 30.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 2 | 161 | 50 | 5.2 | 44.8 | 0 | 100 | 16,100 | 10 | 1,674 | 90 | 14,426 | 0 | 0 | Between SONGS and Orange County |
| | Flatbed Truck | 1 | 55 | 50 | 5.2 | 44.8 | 0 | 50 | 2,750 | 5 | 286 | 45 | 2,464 | 0 | 0 | Between SONGS and Orange County |
| | Worker Commute | 0 | 220 | 0 | 0.0 | 30.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #5 Remove Unit 2 and Unit 3 Intake an d Discharge Pipes (2023, 2024) | 22' Low Bed Transport Truck | 11 | 76 | 50 | 5.2 | 44.8 | 0 | 550 | 41,800 | 57 | 4,347 | 493 | 37,453 | 0 | 0 | Bewteen POLB and equipment yard in SCAQMD |
| | Flatbed Truck 5 Ton | 1 | 21 | 20 | 5.2 | 14.8 | 0 | 20 | 420 | 5 | 109 | 15 | 311 | 0 | 0 | Bewteen POLB and equipment yard in SCAQMD |
| | Pick Up Truck | 7 | 76 | 30 | 5.2 | 24.8 | 0 | 210 | 15,960 | 36 | 2,766 | 174 | 13,194 | 0 | 0 | Bewteen POLB and equipment yard in SCAQMD |
| | Worker Commute | 20 | 154 | 30 | 0.0 | 30.0 | 0 | 600 | 92,400 | 0 | 0 | 600 | 92,400 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 20 | 154 | 467 | 0.0 | 407.0 | 60 | 9340 | ######## | 0 | 0 | 8,140 | ######## | 1,200 | 184,800 | Disposal, From POLB to La Paz |
| | Worker Commute | 14 | 154 | 30 | 0.0 | 30.0 | 0 | 420 | 64,680 | 0 | 0 | 420 | 64,680 | 0 | 0 | within SCAQMD, travel to Port of Long Beach |

**Note**
1. Vehicle travel information was provided by SCE on 3/30/2017.
2. Worker commute trips within SDAPCD traveling to SONGS site were set to zero because worker commute trips will not increase in comparison to baseline conditions (as of NOP)
3. End dump trucks were assumed to have a capacity of 20 ton/load.

**Vehicle Emission Factors 2023**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Commuting Vehicles | 0.112 | 0.075 | 0.874 | 0.003 | 0.047 | 0.020 | 286.401 |
| pickup | 0.332 | 0.158 | 1.805 | 0.003 | 0.048 | 0.021 | 324.446 |
| Haul trucks | 0.065 | 1.943 | 0.368 | 0.015 | 0.104 | 0.041 | 1582.349 |
| Work trucks | 0.629 | 2.141 | 2.286 | 0.007 | 0.105 | 0.052 | 663.596 |

Note:
Vehicle emission factors were obtained from EMFAC2014:
Region: Statewide
Calendar year: 2023
Speed and model year: aggregated
Haul trucks: assumed to be heavy-heavy duty single unit diesel truck
Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM10, emissions also include tire wear and brake wear

**Offshore - Full Removal of Conduits**
**Table 2.8b Construction Emissions - Vehicles 2023**

**Vehicle Emissions - San Diego Air Pollution Control District (SDAPCD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VMT/day | VMT/year | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | Flatbed truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Pickup Truck | 10 | 374 | 0.008 | 0.004 | 0.041 | 0.000 | 0.001 | 0.000 | 7.439 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.134 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2023 | | | 0.008 | 0.004 | 0.041 | 0.000 | 0.001 | 0.000 | 7.439 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.134 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 10 | 1,674 | 0.008 | 0.004 | 0.041 | 0.000 | 0.001 | 0.000 | 7.439 | 0.001 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.599 |
| | Flatbed Truck | 5 | 286 | 0.001 | 0.022 | 0.004 | 0.000 | 0.001 | 0.000 | 18.140 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.499 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2023 | | | 0.008 | 0.026 | 0.046 | 0.000 | 0.002 | 0.001 | 25.579 | 0.001 | 0.001 | 0.003 | 0.000 | 0.000 | 0.000 | 1.098 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 22' Low Bed Transport Truck | 57 | 4,347 | 0.008 | 0.245 | 0.046 | 0.002 | 0.013 | 0.005 | 199.538 | 0.000 | 0.009 | 0.002 | 0.000 | 0.000 | 0.000 | 7.582 |
| | Flatbed Truck 5 Ton | 5 | 109 | 0.001 | 0.022 | 0.004 | 0.000 | 0.001 | 0.000 | 18.140 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.190 |
| | Pick Up Truck | 36 | 2,766 | 0.027 | 0.013 | 0.145 | 0.000 | 0.004 | 0.002 | 26.036 | 0.001 | 0.000 | 0.006 | 0.000 | 0.000 | 0.000 | 0.989 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #5 2023 | | | 0.036 | 0.280 | 0.196 | 0.002 | 0.018 | 0.007 | 243.713 | 0.001 | 0.010 | 0.007 | 0.000 | 0.001 | 0.000 | 8.762 |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #10 2023 | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**Vehicle Emissions - South Coast Air Quality Management District (SCAQMD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VMT/day | VMT/year | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | Flatbed truck | 450 | 34,740 | 0.065 | 1.928 | 0.365 | 0.015 | 0.103 | 0.041 | 1569.791 | 0.003 | 0.074 | 0.014 | 0.001 | 0.004 | 0.002 | 60.594 |
| | Pickup Truck | 90 | 3,226 | 0.066 | 0.031 | 0.357 | 0.001 | 0.009 | 0.004 | 64.088 | 0.001 | 0.001 | 0.006 | 0.000 | 0.000 | 0.000 | 1.154 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2023 | | | 0.130 | 1.959 | 0.722 | 0.016 | 0.112 | 0.045 | 1633.879 | 0.004 | 0.075 | 0.021 | 0.001 | 0.004 | 0.002 | 61.748 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 90 | 14,426 | 0.066 | 0.031 | 0.357 | 0.001 | 0.009 | 0.004 | 64.088 | 0.005 | 0.003 | 0.029 | 0.000 | 0.001 | 0.000 | 5.159 |
| | Flatbed Truck | 45 | 2,464 | 0.006 | 0.192 | 0.036 | 0.001 | 0.010 | 0.004 | 156.281 | 0.000 | 0.005 | 0.001 | 0.000 | 0.000 | 0.000 | 4.298 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2023 | | | 0.072 | 0.223 | 0.393 | 0.002 | 0.020 | 0.008 | 220.370 | 0.005 | 0.008 | 0.030 | 0.000 | 0.001 | 0.000 | 9.457 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 22' Low Bed Transport Truck | 493 | 37,453 | 0.071 | 2.111 | 0.400 | 0.016 | 0.113 | 0.045 | 1719.095 | 0.003 | 0.080 | 0.015 | 0.001 | 0.004 | 0.002 | 65.326 |
| | Flatbed Truck 5 Ton | 15 | 311 | 0.002 | 0.063 | 0.012 | 0.000 | 0.003 | 0.001 | 51.629 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.542 |
| | Pick Up Truck | 174 | 13,194 | 0.127 | 0.060 | 0.691 | 0.001 | 0.018 | 0.008 | 124.171 | 0.005 | 0.002 | 0.026 | 0.000 | 0.001 | 0.000 | 4.718 |
| | Worker Commute | 600 | 92,400 | 0.148 | 0.099 | 1.156 | 0.004 | 0.062 | 0.026 | 378.838 | 0.011 | 0.008 | 0.089 | 0.000 | 0.005 | 0.002 | 29.171 |
| | Subtotal Activity #5 2023 | | | 0.349 | 2.334 | 2.259 | 0.022 | 0.196 | 0.080 | 2273.733 | 0.019 | 0.091 | 0.131 | 0.001 | 0.010 | 0.004 | 99.757 |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 8,140 | 1,253,560 | 1.173 | 34.872 | 6.608 | 0.271 | 1.859 | 0.737 | 28395.773 | 0.090 | 2.685 | 0.509 | 0.021 | 0.143 | 0.057 | 2186.475 |
| | Worker Commute | 420 | 64,680 | 0.104 | 0.069 | 0.809 | 0.003 | 0.044 | 0.018 | 265.186 | 0.008 | 0.005 | 0.062 | 0.000 | 0.003 | 0.001 | 20.419 |
| | Subtotal Activity #10 2023 | | | 1.277 | 34.941 | 7.417 | 0.274 | 1.902 | 0.755 | 28660.959 | 0.098 | 2.690 | 0.571 | 0.021 | 0.146 | 0.058 | 2206.894 |

**Vehicle Emissions -Mojave Desert Air Quality Management District (MDAQMD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VMT/day | VMT/year | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | | | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 1,200 | 184,800 | 0.173 | 5.141 | 0.974 | 0.040 | 0.274 | 0.109 | 4186.109 | 0.013 | 0.396 | 0.075 | 0.003 | 0.021 | 0.008 | 322.330 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #10 2023 | | | 0.173 | 5.141 | 0.974 | 0.040 | 0.274 | 0.109 | 4186.109 | 0.013 | 0.396 | 0.075 | 0.003 | 0.021 | 0.008 | 322.330 |

**Offshore - Full Removal of Conduits**
**Table 2.8c Construction Emissions - Vehicles 2024**

**Vehicle Trip Information**

| Activities | Equipment Name | Vehicle Trips | | | | | | Total Vehicle Miles Traveled | | Vehicle Miles Traveled in SDAPCD | | Vehicle Miles Traveled in SCAQMD | | Vehicle Miles Traveled in MDAQMD | | Route Information |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of trips per day | Number of days/ activity | Total Round Trip distance (miles/trip) | Round Trip distance in SDAPCD (miles/trip) | Round Trip distance in SCAQMD (miles/trip) | Round Trip distance in MDAQMD (miles/trip) | Miles/ day | Miles/ year | Miles/ day | Miles/ year | Miles/ day | Miles/ year | Miles/ day | Miles/ year | |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 2 | 32 | 50 | 5.2 | 44.8 | 0 | 100 | 3,200 | 10 | 333 | 90 | 2,867 | 0 | 0 | Between SONGS and Orange County |
| | Flatbed Truck | 1 | 11 | 50 | 5.2 | 44.8 | 0 | 50 | 550 | 5 | 57 | 45 | 493 | 0 | 0 | Between SONGS and Orange County |
| | Worker Commute | 0 | 44 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 22' Low Bed Transport Truck | 11 | 33 | 50 | 0.0 | 50.0 | 0 | 550 | 18,150 | 0 | 0 | 550 | 18,150 | 0 | 0 | Bewteen POLB and equipment yard in SCAQMD |
| | Flatbed Truck 5 Ton | 1 | 9 | 20 | 0.0 | 20.0 | 0 | 20 | 180 | 0 | 0 | 20 | 180 | 0 | 0 | Bewteen POLB and equipment yard in SCAQMD |
| | Pick Up Truck | 7 | 33 | 30 | 0.0 | 30.0 | 0 | 210 | 6,930 | 0 | 0 | 210 | 6,930 | 0 | 0 | Bewteen POLB and equipment yard in SCAQMD |
| | Worker Commute | 20 | 66 | 30 | 0.0 | 30.0 | 0 | 600 | 39,600 | 0 | 0 | 600 | 39,600 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #6 Preparation for culvert demolition (2024) | Pickup Truck | 1 | 40 | 40 | 5.2 | 34.8 | 0 | 40 | 1,600 | 5 | 208 | 35 | 1,392 | 0 | 0 | Between SONGS and Orange County |
| | Flatbed Truck - 20 Ton | 1 | 40 | 60 | 5.2 | 54.8 | 0 | 60 | 2,400 | 5 | 208 | 55 | 2,192 | 0 | 0 | Between SONGS and Orange County |
| | Worker Commute | 0 | 44 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024) | Pickup Truck | 1 | 10 | 50 | 5.2 | 44.8 | 0 | 50 | 500 | 5 | 52 | 45 | 448 | 0 | 0 | Between SONGS and Orange County |
| | End Dump Truck | 23 | 43 | 489 | 7.5 | 421.0 | 60 | 11,236 | 481,661 | 173 | 7,395 | 9,683 | 415,106 | 1,380 | 59160 | Between SONGS and La Paz |
| | Worker Commute | 20 | 44 | 30 | 0.0 | 30.0 | 0 | 600 | 26,400 | 0 | 0 | 600 | 26,400 | 0 | 0 | within SCAQMD, travel to Dana Point or Port of Long Beach |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | Pickup Truck | 1 | 92 | 40 | 5.2 | 34.8 | 0 | 40 | 3,680 | 5 | 478 | 35 | 3,202 | 0 | 0 | Between SONGS and Orange County |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 20 | 130 | 467 | 0.0 | 407.0 | 60 | 9340 | 1,216,068 | 0 | 0 | 8,140 | 1,059,828 | 1,200 | 156,240 | Disposal, From POLB to La Paz |
| | Worker Commute | 14 | 132 | 30 | 0.0 | 30.0 | 0 | 420 | 55,440 | 0 | 0 | 420 | 55,440 | 0 | 0 | within SCAQMD, travel to Port of Long Beach |

Note:
1. Vehicle travel information was provided by SCE on 3/30/2017.
2. Worker commute trips within SDAPCD traveling to SONGS site were set to zero because worker commute trips will not increase in comparison to baseline conditions (as of NOP).
3. End dump trucks were assumed to have a capacity of 20 ton/load.

**Vehicle Emission Factors 2024**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Commuting Vehicles | 0.106 | 0.068 | 0.815 | 0.003 | 0.047 | 0.020 | 275.628 |
| pickup | 0.310 | 0.142 | 1.643 | 0.003 | 0.048 | 0.021 | 314.085 |
| Haul trucks | 0.066 | 1.918 | 0.373 | 0.015 | 0.103 | 0.041 | 1576.564 |
| Work trucks | 0.613 | 1.996 | 2.144 | 0.006 | 0.104 | 0.052 | 657.262 |

Note:
Vehicle emission factors were obtained from EMFAC2014:
Region: Statewide
Calendar year: 2024
Speed and model year: aggregated
Haul trucks: assumed to be heavy-heavy duty single unit diesel truck.
Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM10, emissions also include tire wear and brake wear.

**Offshore - Full Removal of Conduits**
**Table 2.8c Construction Emissions - Vehicles 2024**

**Vehicle Emissions - San Diego Air Pollution Control District (SDAPCD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VMT/day | VMT/year | ROG lb/day | NOx lb/day | CO lb/day | SO2 lb/day | PM10 lb/day | PM2.5 lb/day | CO2e lb/day | ROG ton/year | NOx ton/year | CO ton/year | SO2 ton/year | PM10 ton/year | PM2.5 ton/year | CO2e ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 10 | 333 | 0.007 | 0.003 | 0.038 | 0.000 | 0.001 | 0.000 | 7.201 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.115 |
| | Flatbed Truck | 5 | 57 | 0.001 | 0.022 | 0.004 | 0.000 | 0.001 | 0.000 | 18.073 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.099 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2024 | | | 0.008 | 0.025 | 0.042 | 0.000 | 0.002 | 0.001 | 25.275 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.215 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 22' Low Bed Transport Truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Flatbed Truck 5 Ton | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Pick Up Truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #5 2024 | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Activity #6 Preparation for culvert demolition (2024) | Pickup Truck | 5 | 208 | 0.004 | 0.002 | 0.019 | 0.000 | 0.001 | 0.000 | 3.601 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.072 |
| | Flatbed Truck - 20 Ton | 5 | 208 | 0.001 | 0.022 | 0.004 | 0.000 | 0.001 | 0.000 | 18.073 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.361 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #6 2024 | | | 0.004 | 0.024 | 0.023 | 0.000 | 0.002 | 0.001 | 21.674 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.433 |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024) | Pickup Truck | 5 | 52 | 0.004 | 0.002 | 0.019 | 0.000 | 0.001 | 0.000 | 3.601 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.018 |
| | End Dump Truck | 173 | 7,395 | 0.025 | 0.729 | 0.142 | 0.006 | 0.039 | 0.016 | 599.553 | 0.001 | 0.016 | 0.003 | 0.000 | 0.001 | 0.000 | 12.851 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #7 2024 | | | 0.029 | 0.731 | 0.161 | 0.006 | 0.040 | 0.016 | 603.154 | 0.001 | 0.016 | 0.003 | 0.000 | 0.001 | 0.000 | 12.869 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | Pickup Truck | 5 | 478 | 0.004 | 0.002 | 0.019 | 0.000 | 0.001 | 0.000 | 3.601 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.166 |
| | Subtotal Activity #8 2024 | | | 0.004 | 0.002 | 0.019 | 0.000 | 0.001 | 0.000 | 3.601 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.166 |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #10 2024 | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**Offshore - Full Removal of Conduits**
**Table 2.8c Construction Emissions - Vehicles 2024**

**Vehicle Emissions - South Coast Air Quality Management District (SCAQMD)**

| Activities | Vehicles | | | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Trip miles | Trip miles | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 90 | 2,867 | 0.061 | 0.028 | 0.325 | 0.001 | 0.009 | 0.004 | 62.041 | 0.001 | 0.000 | 0.005 | 0.000 | 0.000 | 0.000 | 0.993 |
| | Flatbed Truck | 45 | 493 | 0.007 | 0.189 | 0.037 | 0.001 | 0.010 | 0.004 | 155.710 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.856 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2024 | | | 0.068 | 0.218 | 0.361 | 0.002 | 0.020 | 0.008 | 217.751 | 0.001 | 0.001 | 0.005 | 0.000 | 0.000 | 0.000 | 1.849 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 22' Low Bed Transport Truck | 550 | 18,150 | 0.080 | 2.326 | 0.452 | 0.018 | 0.125 | 0.050 | 1911.618 | 0.001 | 0.038 | 0.007 | 0.000 | 0.002 | 0.001 | 31.542 |
| | Flatbed Truck 5 Ton | 20 | 180 | 0.003 | 0.085 | 0.016 | 0.001 | 0.005 | 0.002 | 69.513 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.313 |
| | Pick Up Truck | 210 | 6,930 | 0.144 | 0.066 | 0.761 | 0.001 | 0.022 | 0.010 | 145.410 | 0.002 | 0.001 | 0.013 | 0.000 | 0.000 | 0.000 | 2.399 |
| | Worker Commute | 600 | 39,600 | 0.140 | 0.090 | 1.078 | 0.004 | 0.062 | 0.026 | 364.588 | 0.005 | 0.003 | 0.036 | 0.000 | 0.002 | 0.001 | 12.031 |
| | Subtotal Activity #5 2024 | | | 0.366 | 2.566 | 2.308 | 0.024 | 0.214 | 0.087 | 2491.129 | 0.008 | 0.043 | 0.056 | 0.000 | 0.005 | 0.002 | 46.285 |
| Activity #6 Preparation for culvert demolition (2024) | Pickup Truck | 35 | 1,392 | 0.024 | 0.011 | 0.126 | 0.000 | 0.004 | 0.002 | 24.096 | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.482 |
| | Flatbed Truck - 20 Ton | 55 | 2,192 | 0.008 | 0.232 | 0.045 | 0.002 | 0.012 | 0.005 | 190.467 | 0.000 | 0.005 | 0.001 | 0.000 | 0.000 | 0.000 | 3.809 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #6 2024 | | | 0.032 | 0.243 | 0.171 | 0.002 | 0.016 | 0.007 | 214.563 | 0.001 | 0.005 | 0.003 | 0.000 | 0.000 | 0.000 | 4.291 |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024) | Pickup Truck | 45 | 448 | 0.031 | 0.014 | 0.162 | 0.000 | 0.005 | 0.002 | 31.021 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.155 |
| | End Dump Truck | 9,683 | 415,106 | 1.408 | 40.947 | 7.959 | 0.321 | 2.207 | 0.872 | 33654.911 | 0.030 | 0.878 | 0.171 | 0.007 | 0.047 | 0.019 | 721.386 |
| | Worker Commute | 600 | 26,400 | 0.140 | 0.090 | 1.078 | 0.004 | 0.062 | 0.026 | 364.588 | 0.003 | 0.002 | 0.024 | 0.000 | 0.001 | 0.001 | 8.021 |
| | Subtotal Activity #7 2024 | | | 1.578 | 41.050 | 9.200 | 0.325 | 2.274 | 0.900 | 34050.520 | 0.033 | 0.880 | 0.195 | 0.007 | 0.049 | 0.019 | 729.562 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | Pickup Truck | 35 | 3,202 | 0.024 | 0.011 | 0.126 | 0.000 | 0.004 | 0.002 | 24.096 | 0.001 | 0.001 | 0.006 | 0.000 | 0.000 | 0.000 | 1.108 |
| | Subtotal Activity #8 2024 | | | 0.024 | 0.011 | 0.126 | 0.000 | 0.004 | 0.002 | 24.096 | 0.001 | 0.001 | 0.006 | 0.000 | 0.000 | 0.000 | 1.108 |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 8,140 | 1,059,828 | 1.184 | 34.422 | 6.691 | 0.270 | 1.855 | 0.733 | 28291.953 | 0.077 | 2.241 | 0.436 | 0.018 | 0.121 | 0.048 | 1841.806 |
| | Worker Commute | 420 | 55,440 | 0.098 | 0.063 | 0.755 | 0.003 | 0.044 | 0.018 | 255.211 | 0.006 | 0.004 | 0.050 | 0.000 | 0.003 | 0.001 | 16.844 |
| | Subtotal Activity #10 2024 | | | 1.281 | 34.485 | 7.446 | 0.272 | 1.899 | 0.751 | 28547.164 | 0.084 | 2.245 | 0.485 | 0.018 | 0.124 | 0.049 | 1858.650 |

**Vehicle Emissions -Mojave Desert Air Quality Management District (MDAQMD)**

| Activities | Vehicles | | | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Trip miles | Trip miles | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024) | Pickup Truck | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | End Dump Truck | 1,380 | 59,160 | 0.201 | 5.836 | 1.134 | 0.046 | 0.315 | 0.124 | 4796.424 | 0.004 | 0.125 | 0.024 | 0.001 | 0.007 | 0.003 | 102.810 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #7 2024 | | | 0.201 | 5.836 | 1.134 | 0.046 | 0.315 | 0.124 | 4796.424 | 0.004 | 0.125 | 0.024 | 0.001 | 0.007 | 0.003 | 102.810 |
| Activity #10 Concrete Disposal (2023, 2024) | End Dump Truck | 1,200 | 156,240 | 0.174 | 5.074 | 0.986 | 0.040 | 0.273 | 0.108 | 4170.804 | 0.011 | 0.330 | 0.064 | 0.003 | 0.018 | 0.007 | 271.519 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #10 2024 | | | 0.174 | 5.074 | 0.986 | 0.040 | 0.273 | 0.108 | 4170.804 | 0.011 | 0.330 | 0.064 | 0.003 | 0.018 | 0.007 | 271.519 |

**Offshore - Full Removal of Conduits**
**Table 2.8d Construction Emissions - Vehicles 2025**

**Vehicle Trip Information**

| Activities | Equipment Name | Vehicle Trips | | | | | Total Vehicle Miles Traveled | | Vehicle Miles Traveled in SDAPCD | | Vehicle Miles Traveled in SCAQMD | | Route Information |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of trips per day | Number of days/ activity | Total Round Trip distance (miles/trip) | Round Trip distance in SDAPCD (miles/trip) | Round Trip distance in SCAQMD (miles/trip) | Miles/ day | Miles/ year | Miles/ day | Miles/ year | Miles/ day | Miles/ year | |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 2 | 16.0 | 50 | 5.2 | 44.8 | 100 | 1,600 | 10 | 166 | 90 | 1,434 | Between SONGS and Orange County |
| | Flatbed Truck | 1 | 6.0 | 50 | 5.2 | 44.8 | 50 | 300 | 5 | 31 | 45 | 269 | Between SONGS and Orange |
| | Worker Commute | 0 | 22.0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | within SCAQMD, travel to Dana |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, | Pickup Truck | 1 | 18.0 | 40 | 5.2 | 34.8 | 40 | 720 | 5 | 94 | 35 | 626 | Between SONGS and Orange County |
| Activity #9 Project Demobilization (2025) | F250 Work Truck | 2 | 14 | 50 | 5.2 | 44.8 | 100 | 1,400 | 10 | 146 | 90 | 1,254 | Between SONGS and Orange |
| | Worker Commute | 20 | 22 | 30 | 0.0 | 30.0 | 600 | 13,200 | 0 | 0 | 600 | 13,200 | within SCAQMD, travel to Dana |

**Note**

1. Vehicle travel information was provided by SCE on 3/30/2017.
2. Worker commute trips within SDAPCD traveling to SONGS site were set to zero because worker commute trips will not increase in comparison to baseline conditions (as of NOP).
3. End dump trucks were assumed to have a capacity of 20 ton/load.

**Vehicle Emission Factors 2025**

| | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|
| | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile | g/mile |
| Commuting Vehicles | 0.100 | 0.062 | 0.761 | 0.003 | 0.047 | 0.020 | 264.336 |
| pickup | 0.290 | 0.128 | 1.496 | 0.003 | 0.048 | 0.021 | 302.828 |
| Haul trucks | 0.066 | 1.887 | 0.375 | 0.015 | 0.103 | 0.041 | 1570.157 |
| Work trucks | 0.596 | 1.854 | 2.007 | 0.006 | 0.103 | 0.051 | 650.411 |

Note:
Vehicle emission factors were obtained from EMFAC2014:
Region: Statewide
Calendar year: 2025
Speed and model year: aggregated
Haul trucks: assumed to be heavy-heavy duty single unit diesel truck.
Emissions included running exhaust, startup exhaust, and idling exhaust emissions. For PM10 and PM10, emissions also include tire wear and brake wear.

**Offshore - Full Removal of Conduits**
**Table 2.8d Construction Emissions - Vehicles 2025**

**Vehicle Emissions - San Diego Air Pollution Control District (SDAPCD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 10 | 166 | 0.007 | 0.003 | 0.034 | 0.000 | 0.001 | 0.000 | 6.943 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.056 |
| | Flatbed Truck | 5 | 31 | 0.001 | 0.022 | 0.004 | 0.000 | 0.001 | 0.000 | 18.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.054 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2025 | | | 0.007 | 0.025 | 0.039 | 0.000 | 0.002 | 0.001 | 24.943 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.110 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | Pickup Truck | 5 | 94 | 0.003 | 0.001 | 0.017 | 0.000 | 0.001 | 0.000 | 3.472 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.031 |
| | Subtotal Activity #8 2025 | | | 0.003 | 0.001 | 0.017 | 0.000 | 0.001 | 0.000 | 3.472 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.031 |
| Activity #9 Project Demobilization (2025) | F250 Work Truck | 10 | 146 | 0.014 | 0.043 | 0.046 | 0.000 | 0.002 | 0.001 | 14.912 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.104 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #9 2025 | | | 0.014 | 0.043 | 0.046 | 0.000 | 0.002 | 0.001 | 14.912 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.104 |

**Vehicle Emissions - South Coast Air Quality Management District (SCAQMD)**

| Activities | Vehicles | Trip miles | Trip miles | Daily Emissions | | | | | | | Annual Emissions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SO2 | PM10 | PM2.5 | CO2e |
| | | VMT/day | VMT/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Pickup Truck | 90 | 1,434 | 0.057 | 0.025 | 0.296 | 0.001 | 0.009 | 0.004 | 59.818 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.479 |
| | Flatbed Truck | 45 | 269 | 0.007 | 0.186 | 0.037 | 0.001 | 0.010 | 0.004 | 155.077 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.465 |
| | Worker Commute | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2025 | | | 0.064 | 0.212 | 0.332 | 0.002 | 0.020 | 0.008 | 214.895 | 0.000 | 0.001 | 0.002 | 0.000 | 0.000 | 0.000 | 0.944 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | Pickup Truck | 35 | 626 | 0.022 | 0.010 | 0.115 | 0.000 | 0.004 | 0.002 | 23.233 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.209 |
| | Subtotal Activity #8 2025 | | | 0.022 | 0.010 | 0.115 | 0.000 | 0.004 | 0.002 | 23.233 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.209 |
| Activity #9 Project Demobilization (2025) | F250 Work Truck | 90 | 1,254 | 0.118 | 0.366 | 0.396 | 0.001 | 0.020 | 0.010 | 128.476 | 0.001 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.899 |
| | Worker Commute | 600 | 13,200 | 0.133 | 0.082 | 1.007 | 0.004 | 0.062 | 0.026 | 349.650 | 0.001 | 0.001 | 0.011 | 0.000 | 0.001 | 0.000 | 3.846 |
| | Subtotal Activity #9 2025 | | | 0.251 | 0.448 | 1.404 | 0.005 | 0.083 | 0.036 | 478.126 | 0.002 | 0.003 | 0.014 | 0.000 | 0.001 | 0.000 | 4.745 |

**Offshore - Full Removal of Conduits**
**Table 2.9a Boat Emissions 2022**

**Derived Boat Emission Factors**

| Boat Type | Main Engine Emission Factor | | | | | | | Auxiliary Engine Emission Factor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
| | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr |
| Crew Boat | 0.2426 | 2.3869 | 1.5233 | 0.0000 | 0.0825 | 0.0728 | 216.4699 | 0.4290 | 1.8232 | 1.5015 | 0.0000 | 0.1072 | 0.1072 | 160.7755 |
| Assist tugboat | 0.2680 | 1.8393 | 1.6267 | 0.0000 | 0.0555 | 0.0462 | 204.9815 | 0.2680 | 1.8393 | 1.6267 | 0.0000 | 0.0555 | 0.0462 | 204.9815 |
| Work boat/Push Boat | 0.2050 | 1.7765 | 1.3666 | 0.0000 | 0.0683 | 0.0683 | 176.2432 | 0.0000 | 0.9878 | 0.9878 | 0.0000 | 0.0000 | 0.0000 | 87.1080 |

Note:
1. Emission factors were derived using the 2016 Port of Long Beach Air Emissions Inventory (Starcrest, 2017)
2. Assist tugboat emission factors were used for estimating the emissions from the project tugboat.
3. Push boat used the same emission factors as the work boat emission factors derived from the Long Beach Air Emissions Inventory

**Tugboat, Work Boat, Push Boat, and Crew Boat Operation Data**

| Activity | Boat Name | Number of boats | Max. Hours per day | Number of days | Hours Within 3 miles offshore/per boat | | | | Total hours/boat | | | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SDAPCD | | SCAQMD | | SDAPCD | | SCAQMD | | |
| | | | | | hours/ day | hours/ year | hours/ day | hours/ year | hours/ day | hours/ year | hours/ day | hours/ year | |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Tug onsite | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Onsite |
| | Tug between POLB and SONGS | 1 | 12 | 18 | 2 | 36 | 2 | 36 | 4 | 72 | 8 | 144 | Delivery between SONGS and POLB |
| | Push Boat between POLB and SONGS | 1 | 12 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 8 | 8 | From POLB to SONGS |
| | Push Boat Onsite | 1 | 6 | 20 | 6 | 120 | 0 | 0 | 6 | 120 | 0 | 0 | Onsite |
| | Work Boat | 1 | 5 | 22 | 5 | 110 | 0 | 0 | 5 | 110 | 0 | 0 | Onsite |
| | Crew Boat | 0 | 4 | 22 | 1 | 22 | 3 | 66 | 1 | 22 | 3 | 66 | Between Dana Point and SONGS |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 12 | 4 | 2 | 8 | 2 | 8 | 4 | 16 | 8 | 32 | Between SONGS and POLB |
| | Crew Boat | 0 | 4 | 22 | 1 | 22 | 3 | 66 | 1 | 22 | 3 | 66 | Between Dana Point and SONGS |

Note:
1. Number of boats and boat HP for Push Boat and Crew Boat were provided by SCE on 3/30/2017.
2. Hours in each air district were provided by SCE.
3. Work boat will only have emissions at the SONGS site. It will arrive and leave the site on the barge.

**Offshore - Full Removal of Conduits**
**Table 2.9a Boat Emissions 2022**

**Boat Emissions in San Diego Air Quality Management District (SDAPCD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/ day | days/ year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Tug onsite | 1 | 2400 | 214 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 18 | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.028 | 0.191 | 0.169 | 0.000 | 0.006 | 0.005 | 21.263 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.260 |
| | Push Boat Onsite | 1 | 600 | 140 | 6 | 20 | 1.63 | 15.93 | 12.68 | 0.00 | 0.54 | 0.54 | 1560.07 | 0.016 | 0.159 | 0.127 | 0.000 | 0.005 | 0.005 | 15.601 |
| | Work Boat | 1 | 300 | 140 | 5 | 22 | 0.68 | 7.40 | 6.04 | 0.00 | 0.23 | 0.23 | 717.24 | 0.007 | 0.081 | 0.066 | 0.000 | 0.002 | 0.002 | 7.890 |
| | Crew Boat | 0 | 200 | 55 | 1 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #2 2022 | | | | | | 5.94 | 49.84 | 41.69 | 0.00 | 1.59 | 1.48 | 5159.86 | 0.05 | 0.43 | 0.36 | 0.00 | 0.01 | 0.01 | 45.01 |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 4 | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.006 | 0.042 | 0.037 | 0.000 | 0.001 | 0.001 | 4.725 |
| | Crew Boat | 0 | 200 | 55 | 1 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2022 | | | | | | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.01 | 0.04 | 0.04 | 0.00 | 0.00 | 0.00 | 4.73 |

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/ day | days/ year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Tug onsite | 1 | 2400 | 214 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 18 | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.028 | 0.191 | 0.169 | 0.000 | 0.006 | 0.005 | 21.263 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.260 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 0 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #2 2022 | | | | | | 3.63 | 26.51 | 22.97 | 0.00 | 0.82 | 0.71 | 2882.55 | 0.03 | 0.19 | 0.17 | 0.00 | 0.01 | 0.00 | 21.52 |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 4 | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.006 | 0.042 | 0.037 | 0.000 | 0.001 | 0.001 | 4.725 |
| | Crew Boat | 0 | 200 | 55 | 3 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2022 | | | | | | 3.09 | 21.20 | 18.75 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.01 | 0.04 | 0.04 | 0.00 | 0.00 | 0.00 | 4.73 |

**Offshore - Full Removal of Conduits**
**Table 2.9a Boat Emissions 2022**

**Boat Emissions in San Diego Air Pollution Control District (SDAPCD) (all offshore emissions)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/ day | days/ year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Tug onsite | 1 | 2400 | 214 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 18 | 6.18 | 42.40 | 37.50 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.056 | 0.382 | 0.337 | 0.000 | 0.012 | 0.010 | 42.526 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 4 | 1 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.001 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.520 |
| | Push Boat Onsite | 1 | 600 | 140 | 6 | 20 | 1.63 | 15.93 | 12.68 | 0.00 | 0.54 | 0.54 | 1560.07 | 0.016 | 0.159 | 0.127 | 0.000 | 0.005 | 0.005 | 15.601 |
| | Work Boat | 1 | 300 | 140 | 5 | 22 | 0.68 | 7.40 | 6.04 | 0.00 | 0.23 | 0.23 | 717.24 | 0.007 | 0.081 | 0.066 | 0.000 | 0.002 | 0.002 | 7.890 |
| | Crew Boat | 0 | 200 | 55 | 1 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Activity #2 Sub total 2022 | | | | | | 9.57 | 76.34 | 64.67 | 0.00 | 2.41 | 2.20 | 8042.41 | 0.08 | 0.63 | 0.53 | 0.00 | 0.02 | 0.02 | 66.54 |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 4 | 6.18 | 42.40 | 37.50 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.012 | 0.085 | 0.075 | 0.000 | 0.003 | 0.002 | 9.450 |
| | Crew Boat | 0 | 200 | 55 | 1 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Activity #3 Sub total 2022 | | | | | | 6.18 | 42.40 | 37.50 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.01 | 0.08 | 0.07 | 0.00 | 0.00 | 0.00 | 9.45 |

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (all offshore emission)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/ day | days/ year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year | ton/ year |
| Activity #2 Project Mobilization (Land & Marine), (2022) | Tug onsite | 1 | 2400 | 214 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 18 | 12.36 | 84.79 | 74.99 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.111 | 0.763 | 0.675 | 0.000 | 0.023 | 0.019 | 85.051 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 8 | 1 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.001 | 0.011 | 0.008 | 0.000 | 0.000 | 0.000 | 1.040 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 0 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Activity #2 Sub total 2022 | | | | | | 14.53 | 106.03 | 91.89 | 0.00 | 3.28 | 2.85 | 11530.21 | 0.11 | 0.77 | 0.68 | 0.00 | 0.02 | 0.02 | 86.09 |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 4 | 12.36 | 84.79 | 74.99 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.025 | 0.170 | 0.150 | 0.000 | 0.005 | 0.004 | 18.900 |
| | Crew Boat | 0 | 200 | 55 | 3 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Activity #3 Sub total 2022 | | | | | | 12.36 | 84.79 | 74.99 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.02 | 0.17 | 0.15 | 0.00 | 0.01 | 0.00 | 18.90 |

Note:
1. It was assumed that the auxiliary engines will operate 100% of the main engine operating time.
2. Emissions of Tug Onsite would not overlap with Tug between POLB and SONGS.
3. HP of Assist Tugboat was based on Connolly-Pacific engine information, provided by SCE on 11/28/2017
4. HP of other auxiliary engines of all boats used average HP of auxiliary engine for each corresponding boat types. Number of auxiliary engines were estimated based on the POLB inventory data

**Offshore - Full Removal of Conduits**
**Table 2.9b Boat Emissions 2023**

**Derived Boat Emission Factors**

| Boat Type | Main Engine Emission Factor | | | | | | | Auxiliary Engine Emission Factor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
| | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr |
| Crew Boat | 0.2426 | 2.3869 | 1.5233 | 0.0000 | 0.0825 | 0.0728 | 216.4699 | 0.4290 | 1.8232 | 1.5015 | 0.0000 | 0.1072 | 0.1072 | 160.7755 |
| Assist tugboat | 0.2680 | 1.8393 | 1.0549 | 0.0000 | 0.0555 | 0.0462 | 204.9815 | 0.2680 | 1.8393 | 1.6267 | 0.0000 | 0.0555 | 0.0462 | 204.9815 |
| Work boat/Push Boat | 0.2050 | 1.7765 | 1.3666 | 0.0000 | 0.0683 | 0.0683 | 176.2432 | 0.0000 | 0.9878 | 0.9878 | 0.0000 | 0.0000 | 0.0000 | 87.1080 |

Note:
1. Emission factors were derived using the 2016 Port of Long Beach Air Emissions Inventory (Starcrest, 2017).
2. Assist tugboat emission factors were used for estimating the emissions from the project tugboat.
3. Push boat used the same emission factors as the work boat emission factors derived from the Long Beach Air Emissions Inventory.

**Tugboat, Work Boat, Push Boat, and Crew Boat Operation Data**

| Activity | Boat Name | Number of boats | Max. Hours per day | Number of days | Hours Within 3 miles offshore/per boat | | | | Total hours/boat | | | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SDAPCD | | SCAQMD | | SDAPCD | | SCAQMD | | |
| | | | | | hours/day | hours/year | hours/day | hours/year | Hours/day | Hour/year | Hours/day | Hour/year | |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 12 | 14 | 2 | 28 | 2 | 28 | 4 | 56 | 8 | 112 | Between SONGS and POLB |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Crew Boat | 0 | 4 | 88 | 1 | 88 | 3 | 264 | 1 | 88 | 3 | 264 | Between Dana Point and SONGS |
| | Tug between POLB and SONGS | 1 | 12 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 8 | 0 | Delivery between SONGS and POLB |
| | Work Boat | 1 | 10 | 220 | 10 | 2200 | 0 | 0 | 10 | 2200 | 0 | 0 | Onsite |
| | Push Boat Onsite | 1 | 10 | 220 | 10 | 2200 | 0 | 0 | 10 | 2200 | 0 | 0 | Onsite |
| | Crew Boat | 0 | 4 | 220 | 1 | 220 | 3 | 660 | 1 | 220 | 3 | 660 | Between SONGS and POLB |
| Activity #5 Remove Unit 2 and Unit 3 Intake a nd Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 8 | 167 | 8 | 1336 | 0 | 0 | 8 | 1336 | 0 | 0 | Onsite |
| | Work Boat | 6 | 10 | 157 | 10 | 1570 | 0 | 0 | 10 | 1570 | 0 | 0 | Onsite |
| | Crew Boat | 2 | 4 | 157 | 1 | 157 | 3 | 471 | 1 | 157 | 3 | 471 | Between Dana Point and SONGS |
| | Tug between POLB and SONGS | 1 | 12 | 84 | 2 | 168 | 2 | 168 | 4 | 336 | 8 | 672 | Delivery between SONGS and POLB |

Note:
1. Number of boats and boat HP for Push Boat and Crew Boat were provided by SCE on 3/30/2017.
2. Hours in each air district were provided by SCE.
3. Work boat will only have emissions at the SONGS site. It will arrive and leave the site on the barge.

**Offshore - Full Removal of Conduits**
**Table 2.9b Boat Emissions 2023**

**Boat Emissions in San Diego Air Quality Management District (SDAPCD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 14 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.022 | 0.148 | 0.089 | 0.000 | 0.004 | 0.004 | 16.538 |
| | Crew Boat | 0 | 200 | 55 | 1 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2023 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.02 | 0.15 | 0.09 | 0.00 | 0.00 | 0.00 | 16.54 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 0 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 10 | 220 | 1.36 | 14.80 | 12.09 | 0.00 | 0.45 | 0.45 | 1434.48 | 0.149 | 1.628 | 1.330 | 0.000 | 0.050 | 0.050 | 157.793 |
| | Push Boat Onsite | 1 | 600 | 140 | 10 | 220 | 2.71 | 26.55 | 21.13 | 0.00 | 0.90 | 0.90 | 2600.11 | 0.298 | 2.920 | 2.324 | 0.000 | 0.099 | 0.099 | 286.012 |
| | Crew Boat | 0 | 200 | 55 | 1 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2023 | | | | | | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.45 | 4.55 | 3.65 | 0.00 | 0.15 | 0.15 | 443.81 |
| Activity #5 Remove Unit 2 and Unit 3 Intake a nd Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 8 | 167 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.181 | 1.773 | 1.411 | 0.000 | 0.060 | 0.060 | 173.687 |
| | Work Boat | 6 | 300 | 140 | 10 | 157 | 8.13 | 88.79 | 72.52 | 0.00 | 2.71 | 2.71 | 8606.89 | 0.639 | 6.970 | 5.693 | 0.000 | 0.213 | 0.213 | 675.641 |
| | Crew Boat | 2 | 200 | 55 | 1 | 157 | 0.32 | 2.55 | 1.71 | 0.00 | 0.10 | 0.09 | 229.88 | 0.025 | 0.200 | 0.134 | 0.000 | 0.008 | 0.007 | 18.046 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 84 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.130 | 0.890 | 0.533 | 0.000 | 0.027 | 0.022 | 99.226 |
| | Subtotal Activity #5 2023 | | | | | | 13.71 | 133.77 | 103.83 | 0.00 | 4.17 | 4.06 | 13279.39 | 0.97 | 9.83 | 7.77 | 0.00 | 0.31 | 0.30 | 966.60 |

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 14 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.022 | 0.148 | 0.089 | 0.000 | 0.004 | 0.004 | 16.538 |
| | Crew Boat | 0 | 200 | 55 | 3 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2023 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.02 | 0.15 | 0.09 | 0.00 | 0.00 | 0.00 | 16.54 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 0 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 0 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2023 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Activity #5 Remove Unit 2 and Unit 3 Intake a nd Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 0 | 167 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 6 | 300 | 140 | 0 | 157 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 2 | 200 | 55 | 3 | 157 | 0.95 | 7.64 | 5.12 | 0.00 | 0.30 | 0.27 | 689.64 | 0.075 | 0.600 | 0.402 | 0.000 | 0.023 | 0.021 | 54.137 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 84 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.130 | 0.890 | 0.533 | 0.000 | 0.027 | 0.022 | 99.226 |
| | Subtotal Activity #5 2023 | | | | | | 4.04 | 28.84 | 17.82 | 0.00 | 0.94 | 0.80 | 3052.17 | 0.20 | 1.49 | 0.94 | 0.00 | 0.05 | 0.04 | 153.36 |

**Offshore - Full Removal of Conduits**
**Table 2.9b Boat Emissions 2023**

**Boat Emissions in San Diego Air Pollution Control District (SDAPCD) (all offshore emissions)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 14 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.043 | 0.297 | 0.178 | 0.000 | 0.009 | 0.007 | 33.075 |
| | Crew Boat | 0 | 200 | 55 | 1 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2023 | | | | | | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.04 | 0.30 | 0.18 | 0.00 | 0.01 | 0.01 | 33.08 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 0 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 10 | 220 | 1.36 | 14.80 | 12.09 | 0.00 | 0.45 | 0.45 | 1434.48 | 0.149 | 1.628 | 1.330 | 0.000 | 0.050 | 0.050 | 157.793 |
| | Push Boat Onsite | 1 | 600 | 140 | 10 | 220 | 2.71 | 26.55 | 21.13 | 0.00 | 0.90 | 0.90 | 2600.11 | 0.298 | 2.920 | 2.324 | 0.000 | 0.099 | 0.099 | 286.012 |
| | Crew Boat | 0 | 200 | 55 | 1 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2023 | | | | | | 10.25 | 83.74 | 58.61 | 0.00 | 2.63 | 2.42 | 8759.65 | 0.45 | 4.55 | 3.65 | 0.00 | 0.15 | 0.15 | 443.81 |
| Activity #5 Remove Unit 2 and Unit 3 Intake a nd Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 8 | 167 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.181 | 1.773 | 1.411 | 0.000 | 0.060 | 0.060 | 173.687 |
| | Work Boat | 6 | 300 | 140 | 10 | 157 | 8.13 | 88.79 | 72.52 | 0.00 | 2.71 | 2.71 | 8606.89 | 0.639 | 6.970 | 5.693 | 0.000 | 0.213 | 0.213 | 675.641 |
| | Crew Boat | 2 | 200 | 55 | 1 | 157 | 0.32 | 2.55 | 1.71 | 0.00 | 0.10 | 0.09 | 229.88 | 0.025 | 0.200 | 0.134 | 0.000 | 0.008 | 0.007 | 18.046 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 84 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.259 | 1.781 | 1.067 | 0.000 | 0.054 | 0.045 | 198.452 |
| | Subtotal Activity #5 2023 | | | | | | 16.80 | 154.97 | 116.52 | 0.00 | 4.81 | 4.59 | 15641.91 | 1.10 | 10.72 | 8.30 | 0.00 | 0.33 | 0.33 | 1065.83 |

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (all offshore emission)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 14 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.086 | 0.594 | 0.356 | 0.000 | 0.018 | 0.015 | 66.151 |
| | Crew Boat | 0 | 200 | 55 | 3 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #3 2023 | | | | | | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.09 | 0.59 | 0.36 | 0.00 | 0.02 | 0.01 | 66.15 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 0 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 0 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 220 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal Activity #4 2023 | | | | | | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Activity #5 Remove Unit 2 and Unit 3 Intake a nd Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 0 | 167 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 6 | 300 | 140 | 0 | 157 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 2 | 200 | 55 | 3 | 157 | 0.95 | 7.64 | 5.12 | 0.00 | 0.30 | 0.27 | 689.64 | 0.075 | 0.600 | 0.402 | 0.000 | 0.023 | 0.021 | 54.137 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 84 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.519 | 3.561 | 2.133 | 0.000 | 0.107 | 0.089 | 396.905 |
| | Subtotal Activity #5 2023 | | | | | | 13.31 | 92.43 | 55.91 | 0.00 | 2.85 | 2.40 | 10139.76 | 0.59 | 4.16 | 2.54 | 0.00 | 0.13 | 0.11 | 451.04 |

Note:
1. It was assumed that the auxiliary engines will operate 100% of the main engine operating time.
2. Emissions of tugboat working at SONGS onsite would not overlap with emissions from tugboat traveling between POLB and SONGS.
3. HP of Assist Tugboat was based on Connolly-Pacific engine information, provided by SCE on 11/28/2017.
4. HP of other auxiliary engines of all boats used average HP of auxiliary engine for each corresponding boat types. Number of auxiliary engines were estimated based on the POLB inventory data.

**Offshore - Full Removal of Conduits**
**Table 2.9c Boat Emissions 2024**

**Derived Boat Emission Factors**

| Boat Type | Main Engine Emission Factor | | | | | | | Auxiliary Engine Emission Factor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
| | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr |
| Crew Boat | 0.2426 | 2.3869 | 1.5233 | 0.0000 | 0.0825 | 0.0728 | 216.47 | 0.4290 | 1.8232 | 1.5015 | 0.0000 | 0.1072 | 0.1072 | 160.78 |
| Assist tugboat | 0.2680 | 1.8393 | 1.0549 | 0.0000 | 0.0555 | 0.0462 | 204.981 | 0.2680 | 1.8393 | 1.6267 | 0.0000 | 0.0555 | 0.0462 | 204.981 |
| Work boat/Push Boat | 0.2050 | 1.7765 | 1.3666 | 0.0000 | 0.0683 | 0.0683 | 176.24 | 0.0000 | 0.9878 | 0.9878 | 0.0000 | 0.0000 | 0.0000 | 87.11 |

Note:
1. Emission factors were derived using the 2016 Port of Long Beach Air Emissions Inventory (Starcrest, 2017).
2. Assist tugboat emission factors were used for estimating the emissions from the project tugboat.
3. Push boat used the same emission factors as the work boat emission factors derived from the Long Beach Air Emissions Inventory.

**Tugboat, Work Boat, Push Boat, and Crew Boat Operation Data**

| Activity | Boat Name | Number of boats | Max. Hours per day | Number of days | Hours Within 3 miles offshore/per boat | | | | Total hours/boat | | | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SDAPCD | | SCAQMD | | SDAPCD | | SCAQMD | | |
| | | | | | hours/day | hours/year | hours/day | hours/year | Hours/day | Hour/year | Hours/day | Hour/year | |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 12 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 8 | 0 | Delivery between SONGS and POLB |
| | Work Boat | 1 | 10 | 44 | 10 | 440 | 0 | 0 | 10 | 440 | 0 | 0 | Onsite |
| | Push Boat Onsite | 1 | 10 | 44 | 10 | 440 | 0 | 0 | 10 | 440 | 0 | 0 | Onsite |
| | Crew Boat | 0 | 4 | 44 | 1 | 44 | 3 | 132 | 1 | 44 | 3 | 132 | Between SONGS and POLB |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 8 | 33 | 8 | 264 | 0 | 0 | 8 | 264 | 0 | 0 | Onsite |
| | Work Boat | 6 | 10 | 68 | 10 | 680 | 0 | 0 | 10 | 680 | 0 | 0 | Onsite |
| | Crew Boat | 2 | 4 | 68 | 1 | 68 | 3 | 204 | 1 | 68 | 3 | 204 | Between Dana Point and SONGS |
| | Tug between POLB and SONGS | 1 | 12 | 36 | 2 | 72 | 2 | 72 | 4 | 144 | 8 | 288 | Delivery between SONGS and POLB |
| Activity #6 Preparation for Culvert Demolition (2024) | Tug between POLB and SONGS | 1 | 12 | 30 | 2 | 60 | 2 | 60 | 4 | 120 | 8 | 240 | Delivery between SONGS and POLB |
| | Crew Boat | 0 | 4 | 66 | 1 | 66 | 3 | 198 | 1 | 66 | 3 | 198 | Between Dana Point and SONGS |
| Activity #7 Demolish RC Culverts & Backfill Trench (2025) | Tug onsite | 1 | 6 | 42 | 6 | 252 | 0 | 0 | 6 | 252 | 0 | 0 | Onsite |
| | Crew Boat | 1 | 4 | 42 | 1 | 42 | 3 | 126 | 1 | 42 | 3 | 126 | Between Dana Point and SONGS |

Note:
1. Number of boats and boat HP for Push Boat and Crew Boat were provided by SCE on 3/31/2017.
2. Hours in each air district were provided by SCE.
3. Work boat will only have emissions at the SONGS site. It will arrive and leave the site on the barge.

**Offshore - Full Removal of Conduits**
**Table 2.9c Boat Emissions 2024**

**Boat Emissions in San Diego Air Quality Management District (SDAPCD) (within 3 miles offshore)**

| Activity | Boat Type | Number of Boat | Main Engine HP per | Auxiliary Engine HP per | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 0 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 10 | 44 | 1.36 | 14.80 | 12.09 | 0.00 | 0.45 | 0.45 | 1434.48 | 0.030 | 0.326 | 0.266 | 0.000 | 0.010 | 0.010 | 31.559 |
| | Push Boat Onsite | 1 | 600 | 140 | 10 | 44 | 2.71 | 26.55 | 21.13 | 0.00 | 0.90 | 0.90 | 2600.11 | 0.060 | 0.584 | 0.465 | 0.000 | 0.020 | 0.020 | 57.202 |
| | Crew Boat | 0 | 200 | 55 | 1 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2024 | | | | | | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.09 | 0.91 | 0.73 | 0.00 | 0.03 | 0.03 | 88.76 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 8 | 33 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.036 | 0.350 | 0.279 | 0.000 | 0.012 | 0.012 | 34.321 |
| | Work Boat | 6 | 300 | 140 | 10 | 68 | 8.13 | 88.79 | 72.52 | 0.00 | 2.71 | 2.71 | 8606.89 | 0.277 | 3.019 | 2.466 | 0.000 | 0.092 | 0.092 | 292.634 |
| | Crew Boat | 2 | 200 | 55 | 1 | 68 | 0.32 | 2.55 | 1.71 | 0.00 | 0.10 | 0.09 | 229.88 | 0.011 | 0.087 | 0.058 | 0.000 | 0.003 | 0.003 | 7.816 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 36 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.056 | 0.382 | 0.229 | 0.000 | 0.012 | 0.010 | 42.526 |
| | Subtotal of Activity #5 2024 | | | | | | 13.71 | 133.77 | 103.83 | 0.00 | 4.17 | 4.06 | 13279.39 | 0.38 | 3.84 | 3.03 | 0.00 | 0.12 | 0.12 | 377.30 |
| Activity #6 Preparation for Culvert Demolition (2024) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 30 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.046 | 0.318 | 0.190 | 0.000 | 0.010 | 0.008 | 35.438 |
| | Crew Boat | 0 | 200 | 55 | 1 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #6 2024 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.05 | 0.32 | 0.19 | 0.00 | 0.01 | 0.01 | 35.44 |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Tug onsite | 1 | 2400 | 214 | 6 | 42 | 9.27 | 63.60 | 38.09 | 0.00 | 1.92 | 1.60 | 7087.59 | 0.195 | 1.336 | 0.800 | 0.000 | 0.040 | 0.034 | 148.839 |
| | Crew Boat | 1 | 200 | 55 | 1 | 42 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.003 | 0.027 | 0.018 | 0.000 | 0.001 | 0.001 | 2.414 |
| | Subtotal of Activity #7 2024 | | | | | | 9.43 | 64.87 | 38.95 | 0.00 | 1.97 | 1.64 | 7202.53 | 0.20 | 1.36 | 0.82 | 0.00 | 0.04 | 0.03 | 151.25 |

Note: It was assumed that the auxiliary engines will operate 100% of the main engine operating time.

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine | Auxiliary Engine | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 0 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 0 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2024 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 0 | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 6 | 300 | 140 | 0 | 68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 2 | 200 | 55 | 3 | 68 | 0.95 | 7.64 | 5.12 | 0.00 | 0.30 | 0.27 | 689.64 | 0.032 | 0.260 | 0.174 | 0.000 | 0.010 | 0.009 | 23.448 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 36 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.056 | 0.382 | 0.229 | 0.000 | 0.012 | 0.010 | 42.526 |
| | Subtotal of Activity #5 2024 | | | | | | 4.04 | 28.84 | 17.82 | 0.00 | 0.94 | 0.80 | 3052.17 | 0.09 | 0.64 | 0.40 | 0.00 | 0.02 | 0.02 | 65.97 |
| Activity #6 Preparation for Culvert Demolition (2024) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 30 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.046 | 0.318 | 0.190 | 0.000 | 0.010 | 0.008 | 35.438 |
| | Crew Boat | 0 | 200 | 55 | 3 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #6 2024 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.05 | 0.32 | 0.19 | 0.00 | 0.01 | 0.01 | 35.44 |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Tug onsite | 1 | 2400 | 214 | 0 | 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 1 | 200 | 55 | 3 | 42 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.010 | 0.080 | 0.054 | 0.000 | 0.003 | 0.003 | 7.241 |
| | Subtotal of Activity #7 2024 | | | | | | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.01 | 0.08 | 0.05 | 0.00 | 0.00 | 0.00 | 7.24 |

**Offshore - Full Removal of Conduits**
**Table 2.9c Boat Emissions 2024**

**Boat Emissions in San Diego Air Pollution Control District (SDAPCD) (all offshore emissions)**

| Activity | | Number of Boat | Main Engine | Auxiliary Engine | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 0 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 10 | 44 | 1.36 | 14.80 | 12.09 | 0.00 | 0.45 | 0.45 | 1434.48 | 0.030 | 0.326 | 0.266 | 0.000 | 0.010 | 0.010 | 31.559 |
| | Push Boat Onsite | 1 | 600 | 140 | 10 | 44 | 2.71 | 26.55 | 21.13 | 0.00 | 0.90 | 0.90 | 2600.11 | 0.060 | 0.584 | 0.465 | 0.000 | 0.020 | 0.020 | 57.202 |
| | Crew Boat | 0 | 200 | 55 | 1 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2024 | | | | | | 10.25 | 83.74 | 58.61 | 0.00 | 2.63 | 2.42 | 8759.65 | 0.09 | 0.91 | 0.73 | 0.00 | 0.03 | 0.03 | 88.76 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 8 | 33 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.036 | 0.350 | 0.279 | 0.000 | 0.012 | 0.012 | 34.321 |
| | Work Boat | 6 | 300 | 140 | 10 | 68 | 8.13 | 88.79 | 72.52 | 0.00 | 2.71 | 2.71 | 8606.89 | 0.277 | 3.019 | 2.466 | 0.000 | 0.092 | 0.092 | 292.634 |
| | Crew Boat | 2 | 200 | 55 | 1 | 68 | 0.32 | 2.55 | 1.71 | 0.00 | 0.10 | 0.09 | 229.88 | 0.011 | 0.087 | 0.058 | 0.000 | 0.003 | 0.003 | 7.816 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 36 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.111 | 0.763 | 0.457 | 0.000 | 0.023 | 0.019 | 85.051 |
| | Subtotal of Activity #5 2024 | | | | | | 16.80 | 154.97 | 116.52 | 0.00 | 4.81 | 4.59 | 15641.91 | 0.43 | 4.22 | 3.26 | 0.00 | 0.13 | 0.13 | 419.82 |
| Activity #6 Preparation for Culvert Demolition (2024) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 30 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.093 | 0.636 | 0.381 | 0.000 | 0.019 | 0.016 | 70.876 |
| | Crew Boat | 0 | 200 | 55 | 1 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #6 2024 | | | | | | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.09 | 0.64 | 0.38 | 0.00 | 0.02 | 0.02 | 70.88 |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Tug onsite | 1 | 2400 | 214 | 6 | 42 | 9.27 | 63.60 | 38.09 | 0.00 | 1.92 | 1.60 | 7087.59 | 0.195 | 1.336 | 0.800 | 0.000 | 0.040 | 0.034 | 148.839 |
| | Crew Boat | 1 | 200 | 55 | 1 | 42 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.003 | 0.027 | 0.018 | 0.000 | 0.001 | 0.001 | 2.414 |
| | Subtotal of Activity #7 2024 | | | | | | 9.43 | 64.87 | 38.95 | 0.00 | 1.97 | 1.64 | 7202.53 | 0.20 | 1.36 | 0.82 | 0.00 | 0.04 | 0.03 | 0.00 |

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (all offshore emission)**

| Activity | | Number of Boat | Main Engine | Auxiliary Engine | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 0 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 1 | 300 | 140 | 0 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2024 | | | | | | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | Push Boat Onsite | 1 | 600 | 140 | 0 | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Work Boat | 6 | 300 | 140 | 0 | 68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 2 | 200 | 55 | 3 | 68 | 0.95 | 7.64 | 5.12 | 0.00 | 0.30 | 0.27 | 689.64 | 0.032 | 0.260 | 0.174 | 0.000 | 0.010 | 0.009 | 23.448 |
| | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 36 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.222 | 1.526 | 0.914 | 0.000 | 0.046 | 0.038 | 170.102 |
| | Subtotal of Activity #5 2024 | | | | | | 13.31 | 92.43 | 55.91 | 0.00 | 2.85 | 2.40 | 10139.76 | 0.25 | 1.79 | 1.09 | 0.00 | 0.06 | 0.05 | 193.55 |
| Activity #6 Preparation for Culvert Demolition (2024) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 30 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.185 | 1.272 | 0.762 | 0.000 | 0.038 | 0.032 | 141.752 |
| | Crew Boat | 0 | 200 | 55 | 3 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #6 2024 | | | | | | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.19 | 1.27 | 0.76 | 0.00 | 0.04 | 0.03 | 141.75 |
| Activity #7 Demolish RC Culverts & Backfill Trench (2024) | Tug onsite | 1 | 2400 | 214 | 0 | 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 1 | 200 | 55 | 3 | 42 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.010 | 0.080 | 0.054 | 0.000 | 0.003 | 0.003 | 7.241 |
| | Subtotal of Activity #7 2024 | | | | | | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.01 | 0.08 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |

Note:

1. It was assumed that the auxiliary engines will operate 100% of the main engine operating time.
2. Emissions of tugboat working at SONGS onsite would not overlap with emissions from tugboat traveling between POLB and SONGS.
3. HP of Assist Tugboat was based on Connolly-Pacific engine information, provided by SCE on 11/28/2017.
4. HP of other auxiliary engines of all boats used average HP of auxiliary engine for each corresponding boat types. Number of auxiliary engines were estimated based on the POLB inventory data.

**Offshore - Full Removal of Conduits**
**Table 2.9d Boat Emissions 2025**

**Derived Boat Emission Factors**

| Boat Type | Main Engine Emission Factor | | | | | | | Auxiliary Engine Emission Factor | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
| | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr | g/hp/hr |
| Crew Boat | 0.2426 | 2.3869 | 1.5233 | 0.0000 | 0.0825 | 0.0728 | 216.4699 | 0.4290 | 1.8232 | 1.5015 | 0.0000 | 0.1072 | 0.1072 | 160.7755 |
| Assist tugboat | 0.2680 | 1.8393 | 1.0549 | 0.0000 | 0.0555 | 0.0462 | 204.9815 | 0.2680 | 1.8393 | 1.6267 | 0.0000 | 0.0555 | 0.0462 | 204.9815 |
| Work boat/Push Boat | 0.2050 | 1.7765 | 1.3666 | 0.0000 | 0.0683 | 0.0683 | 176.2432 | 0.0000 | 0.9878 | 0.9878 | 0.0000 | 0.0000 | 0.0000 | 87.1080 |

Note:
1. Emission factors were derived using the 2016 Port of Long Beach Air Emissions Inventory (Starcrest, 2017).
2. Assist tugboat emission factors were used for estimating the emissions from the project tugboat.
3. Push boat used the same emission factors as the work boat emission factors derived from the Long Beach Air Emissions Inventory.

**Tugboat, Work Boat, Push Boat, and Crew Boat Operation Data**

| Activity | Boat Name | Number of boats | Max. Hours per day | Number of days | Hours Within 3 miles offshore/per boat | | | | Total hours/boat | | | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SDAPCD | | SCAQMD | | SDAPCD | | SCAQMD | | |
| | | | | | hours/ day | hours/ year | hours/ day | hours/ year | Hours/ day | Hour/ year | Hours/ day | Hour/ year | |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 12 | 18 | 2 | 36 | 2 | 36 | 4 | 72 | 8 | 144 | Delivery between SONGS and POLB |
| | Work Boat | 1 | 10 | 22 | 10 | 220 | 0 | 0 | 10 | 220 | 0 | 0 | Onsite |
| | Push Boat Onsite | 1 | 10 | 22 | 10 | 220 | 0 | 0 | 10 | 220 | 0 | 0 | Onsite |
| | Crew Boat | 0 | 4 | 22 | 1 | 22 | 3 | 66 | 1 | 22 | 3 | 66 | Between SONGS and POLB |
| Activity #9 Project Demobilization (2025) | Tug between POLB and SONGS | 1 | 12 | 18 | 2 | 36 | 2 | 36 | 4 | 72 | 8 | 144 | Delivery between SONGS and POLB |
| | Work Boat | 1 | 6 | 18 | 6 | 108 | 0 | 0 | 6 | 108 | 0 | 0 | Onsite |
| | Push Boat between POLB and SONGS | 1 | 12 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 8 | 8 | from SONGS to POLB |
| | Push Boat Onsite | 1 | 7 | 16 | 7 | 112 | 0 | 0 | 7 | 112 | 0 | 0 | Onsite |
| | Crew Boat | 1 | 4 | 16 | 1 | 16 | 3 | 48 | 1 | 16 | 3 | 48 | Between Dana Point and SONGS |

Note:
1. Number of boats and boat HP for Push Boat and Crew Boat were provided by SCE on 3/30/2017.
2. Hours in each air district were provided by SCE.
3. Work boat will only have emissions at the SONGS site. It will arrive and leave the site on the barge.

**Offshore - Full Removal of Conduits**
**Table 2.9d Boat Emissions 2025**

**Boat Emissions in San Diego Air Quality Management District (SDAPCD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 18 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.028 | 0.191 | 0.114 | 0.000 | 0.006 | 0.005 | 21.263 |
| | Work Boat | 1 | 300 | 140 | 10 | 22 | 1.36 | 14.80 | 12.09 | 0.00 | 0.45 | 0.45 | 1434.48 | 0.015 | 0.163 | 0.133 | 0.000 | 0.005 | 0.005 | 15.779 |
| | Push Boat Onsite | 1 | 600 | 140 | 10 | 22 | 2.71 | 26.55 | 21.13 | 0.00 | 0.90 | 0.90 | 2600.11 | 0.030 | 0.292 | 0.232 | 0.000 | 0.010 | 0.010 | 28.601 |
| | Crew Boat | 0 | 200 | 55 | 1 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2025 | | | | | | 7.16 | 62.54 | 45.91 | 0.00 | 1.99 | 1.89 | 6397.12 | 0.07 | 0.65 | 0.48 | 0.00 | 0.02 | 0.02 | 65.64 |
| Activity #9 Project Demobilization (2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 18 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.028 | 0.191 | 0.114 | 0.000 | 0.006 | 0.005 | 21.263 |
| | Work Boat | 1 | 300 | 140 | 6 | 18 | 0.81 | 8.88 | 7.25 | 0.00 | 0.27 | 0.27 | 860.69 | 0.007 | 0.080 | 0.065 | 0.000 | 0.002 | 0.002 | 7.746 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.260 |
| | Push Boat Onsite | 1 | 600 | 140 | 7 | 16 | 1.90 | 18.58 | 14.79 | 0.00 | 0.63 | 0.63 | 1820.08 | 0.015 | 0.149 | 0.118 | 0.000 | 0.005 | 0.005 | 14.561 |
| | Crew Boat | 1 | 200 | 55 | 1 | 16 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.001 | 0.010 | 0.007 | 0.000 | 0.000 | 0.000 | 0.920 |
| | Subtotal of Activity #9 2025 | | | | | | 6.50 | 55.24 | 39.82 | 0.00 | 1.77 | 1.66 | 5678.26 | 0.05 | 0.43 | 0.31 | 0.00 | 0.01 | 0.01 | 44.75 |

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (within 3 miles offshore)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 18 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.028 | 0.191 | 0.114 | 0.000 | 0.006 | 0.005 | 21.263 |
| | Work Boat | 1 | 300 | 140 | 0 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2025 | | | | | | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.03 | 0.19 | 0.11 | 0.00 | 0.01 | 0.00 | 21.26 |
| Activity #9 Project Demobilization (2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 2 | 18 | 3.09 | 21.20 | 12.70 | 0.00 | 0.64 | 0.53 | 2362.53 | 0.028 | 0.191 | 0.114 | 0.000 | 0.006 | 0.005 | 21.263 |
| | Work Boat | 1 | 300 | 140 | 0 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 2 | 1 | 0.54 | 5.31 | 4.23 | 0.00 | 0.18 | 0.18 | 520.02 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.260 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 1 | 200 | 55 | 3 | 16 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.004 | 0.031 | 0.020 | 0.000 | 0.001 | 0.001 | 2.759 |
| | Subtotal of Activity #9 2025 | | | | | | 4.11 | 30.33 | 19.48 | 0.00 | 0.97 | 0.85 | 3227.37 | 0.03 | 0.22 | 0.14 | 0.00 | 0.01 | 0.01 | 24.28 |

**Offshore - Full Removal of Conduits**
**Table 2.9d Boat Emissions 2025**

**Boat Emissions in San Diego Air Pollution Control District (SDAPCD) (all offshore emissions)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 18 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.056 | 0.382 | 0.229 | 0.000 | 0.012 | 0.010 | 42.526 |
| | Work Boat | 1 | 300 | 140 | 10 | 22 | 1.36 | 14.80 | 12.09 | 0.00 | 0.45 | 0.45 | 1434.48 | 0.015 | 0.163 | 0.133 | 0.000 | 0.005 | 0.005 | 15.779 |
| | Push Boat Onsite | 1 | 600 | 140 | 10 | 22 | 2.71 | 26.55 | 21.13 | 0.00 | 0.90 | 0.90 | 2600.11 | 0.030 | 0.292 | 0.232 | 0.000 | 0.010 | 0.010 | 28.601 |
| | Crew Boat | 0 | 200 | 55 | 1 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2025 | | | | | | 10.25 | 83.74 | 58.61 | 0.00 | 2.63 | 2.42 | 8759.65 | 0.10 | 0.84 | 0.59 | 0.00 | 0.03 | 0.02 | 86.91 |
| Activity #9 Project Demobilization (2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 4 | 18 | 6.18 | 42.40 | 25.40 | 0.00 | 1.28 | 1.07 | 4725.06 | 0.056 | 0.382 | 0.229 | 0.000 | 0.012 | 0.010 | 42.526 |
| | Work Boat | 1 | 300 | 140 | 6 | 18 | 0.81 | 8.88 | 7.25 | 0.00 | 0.27 | 0.27 | 860.69 | 0.007 | 0.080 | 0.065 | 0.000 | 0.002 | 0.002 | 7.746 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 4 | 1 | 1.08 | 10.62 | 8.45 | 0.00 | 0.36 | 0.36 | 1040.04 | 0.001 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.520 |
| | Push Boat Onsite | 1 | 600 | 140 | 7 | 16 | 1.90 | 18.58 | 14.79 | 0.00 | 0.63 | 0.63 | 1820.08 | 0.015 | 0.149 | 0.118 | 0.000 | 0.005 | 0.005 | 14.561 |
| | Crew Boat | 1 | 200 | 55 | 1 | 16 | 0.16 | 1.27 | 0.85 | 0.00 | 0.05 | 0.05 | 114.94 | 0.001 | 0.010 | 0.007 | 0.000 | 0.000 | 0.000 | 0.920 |
| | Subtotal of Activity #9 2025 | | | | | | 10.13 | 81.75 | 56.74 | 0.00 | 2.59 | 2.38 | 8560.81 | 0.08 | 0.63 | 0.42 | 0.00 | 0.02 | 0.02 | 66.27 |

Note: It was assumed that the auxiliary engines will operate 100% of the main engine operating time.

**Boat Emissions in South Coast Air Quality Management District (SCAQMD) (all offshore emission)**

| Activity | | Number of Boat | Main Engine HP per boat | Auxiliary Engine HP per Boat | Operating hours/boat | | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e | ROG | NOx | CO | SOx | PM10 | PM2.5 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | hours/day | days/year | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | lb/day | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 18 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.111 | 0.763 | 0.457 | 0.000 | 0.023 | 0.019 | 85.051 |
| | Work Boat | 1 | 300 | 140 | 0 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 0 | 200 | 55 | 3 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Subtotal of Activity #4 2025 | | | | | | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.11 | 0.76 | 0.46 | 0.00 | 0.02 | 0.02 | 85.05 |
| Activity #9 Project Demobilization (2025) | Tug between POLB and SONGS | 1 | 2400 | 214 | 8 | 18 | 12.36 | 84.79 | 50.79 | 0.00 | 2.56 | 2.13 | 9450.12 | 0.111 | 0.763 | 0.457 | 0.000 | 0.023 | 0.019 | 85.051 |
| | Work Boat | 1 | 300 | 140 | 0 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Push Boat between POLB and SONGS | 1 | 600 | 140 | 8 | 1 | 2.17 | 21.24 | 16.90 | 0.00 | 0.72 | 0.72 | 2080.09 | 0.001 | 0.011 | 0.008 | 0.000 | 0.000 | 0.000 | 1.040 |
| | Push Boat Onsite | 1 | 600 | 140 | 0 | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Crew Boat | 1 | 200 | 55 | 3 | 16 | 0.48 | 3.82 | 2.56 | 0.00 | 0.15 | 0.14 | 344.82 | 0.004 | 0.031 | 0.020 | 0.000 | 0.001 | 0.001 | 2.759 |
| | Subtotal of Activity #9 2025 | | | | | | 15.00 | 109.85 | 70.25 | 0.00 | 3.43 | 2.99 | 11875.02 | 0.12 | 0.80 | 0.49 | 0.00 | 0.02 | 0.02 | 88.85 |

Note:

1. It was assumed that the auxiliary engines will operate 100% of the main engine operating time.
2. Emissions of tugboat working at SONGS onsite would not overlap with emissions from tugboat traveling between POLB and SONGS.
3. HP of Assist Tugboat was based on Connolly-Pacific engine information, provided by SCE on 11/28/2017.
4. HP of other auxiliary engines of all boats used average HP of auxiliary engine for each corresponding boat types. Number of auxiliary engines were estimated based on the POLB inventory data.

**Offshore - Full Removal of Conduits**
**Table 2.9e Boat Emissions**

**Boat Emission Factors Calculation**

| | | Port of Long Beach Harbor Craft Emissions by Vessel and Engine Type 2016 | | | | | | | | Port of Long Beach Vessels | | | | Derived Emission Factors | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Harbor Craft | Engine Type | PM10 tons | PM2.5 tons | DPM tons | NOx tons | SOx tons | CO tons | HC tons | CO2e metric tons | Number of vessels | Engine Count | Average HP per engine HP/ engine | Average operating hours per engine hours/ engine | PM10 g/hp/hr | PM2.5 g/hp/hr | DPM g/hp/hr | NOx g/hp/hr | SOx g/hp/hr | CO g/hp/hr | HC g/hp/hr | CO2e g/hp/hr |
| Assist tugboat | Auxiliary | 0.6 | 0.5 | 0.6 | 19.9 | 0 | 17.6 | 2.9 | 2,012 | 15 | 30 | 208 | 1573 | 0.055 | 0.046 | 0.055 | 1.839 | 0.000 | 1.627 | 0.268 | 204.981 |
| | Propulsion | 6.5 | 6 | 6.5 | 182 | 0.2 | 126.1 | 18.5 | 14,640 | 15 | 31 | 2020 | 1406 | 0.067 | 0.062 | 0.067 | 1.875 | 0.002 | 1.299 | 0.191 | 166.281 |
| Crew Boat | Auxiliary | 0.1 | 0.1 | 0.1 | 1.7 | 0 | 1.4 | 0.4 | 136 | 17 | 20 | 55 | 769 | 0.107 | 0.107 | 0.107 | 1.823 | 0.000 | 1.501 | 0.429 | 160.776 |
| | Propulsion | 1.7 | 1.5 | 1.7 | 49.2 | 0 | 31.4 | 5 | 4,048 | 17 | 41 | 587 | 777 | 0.082 | 0.073 | 0.082 | 2.387 | 0.000 | 1.523 | 0.243 | 216.470 |
| Ocean tugboat | Auxiliary | 0.2 | 0.2 | 0.2 | 4.5 | 0 | 3.4 | 0.6 | 383 | 6 | 13 | 126 | 1061 | 0.104 | 0.104 | 0.104 | 2.349 | 0.000 | 1.775 | 0.313 | 220.379 |
| | Propulsion | 5.5 | 5 | 5.5 | 151.5 | 0.1 | 78.6 | 13.4 | 10,774 | 6 | 12 | 1837 | 1243 | 0.182 | 0.166 | 0.182 | 5.016 | 0.003 | 2.602 | 0.444 | 393.202 |
| Harbor tugboat | Auxiliary | 0 | 0 | 0 | 0.9 | 0 | 0.7 | 0.2 | 73 | 12 | 22 | 64 | 305 | 0.000 | 0.000 | 0.000 | 1.901 | 0.000 | 1.479 | 0.423 | 169.989 |
| | Propulsion | 0.4 | 0.3 | 0.4 | 12.2 | 0 | 9.5 | 1.3 | 1,065 | 12 | 25 | 799 | 409 | 0.044 | 0.033 | 0.044 | 1.355 | 0.000 | 1.055 | 0.144 | 130.359 |
| Work boat/Push Boat | Auxiliary | 0 | 0 | 0 | 0.1 | 0 | 0.1 | 0 | 8 | 4 | 8 | 70 | 164 | 0.000 | 0.000 | 0.000 | 0.988 | 0.000 | 0.988 | 0.000 | 87.108 |
| | Propulsion | 0.1 | 0.1 | 0.1 | 2.6 | 0 | 2 | 0.3 | 234 | 4 | 7 | 473 | 401 | 0.068 | 0.068 | 0.068 | 1.777 | 0.000 | 1.367 | 0.205 | 176.243 |

Note:
Harbor Craft emission data were from Table 3.1: 2016 Harbor Craft Emissions by Vessel and Engine Type, 2016 Port of Long Beach Air Emissions Inventory
Harbor Craft engine data were from Table 3.3 and 3.4, Engine Characteristics by Harbor Craft Type, 2016 Port of Long Beach Air Emissions Inventory.

**Offshore - Full Removal of Conduits**

**Table 2.10a Vehicle Fugitive Dust Emissions on Paved Roads 2022**

Emission factor (g/VMT) = k X (sL)^0.91 X W^1.02

| | | PM10 | PM2.5 |
|---|---|---|---|
| k | | 1.0 | 0.25 |
| sL | g/m2 | 0.10 | 0.10 |
| W | tons | 2.4 | 2.4 |
| EF | (g/VMT) | 0.300 | 0.075 |

Equation from: AP-42 13.2.1

sL and W (silt loading and vehicle weight) are CalEEMod default values.

**Vehicle Fugitive Dust Emissions on Paved Roads**

**Emissions in San Diego Air Pollution District (SDAPCD)**

| Activities | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work (2022) | 45 | 0.03 | 0.01 | 821 | 0.0003 | 0.0001 |
| Activity #2 Project Mobilization (Land & Marine), (2022) | 78 | 0.05 | 0.01 | 1,248 | 0.0004 | 0.0001 |
| Activity #3 Trestle Material Supply (2022, 2023) | 10 | 0.01 | 0.00 | 94 | 0.0000 | 0.0000 |

**Emissions in South Coast Air Quality Management District (SCAQMD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #1 Onshore Bulkhead Work (2022) | 115 | 0.08 | 0.02 | 779 | 0.0003 | 0.0001 |
| Activity #2 Project Mobilization (Land & Marine), (2022) | 1,072 | 0.71 | 0.18 | 21,152 | 0.0070 | 0.0018 |
| Activity #3 Trestle Material Supply (2022, 2023) | 540 | 0.36 | 0.09 | 10,706 | 0.0035 | 0.0009 |

**Offshore - Full Removal of Conduits**
**Table 2.10b Vehicle Fugitive Dust Emissions on Paved Roads 2023**

Emission factor (g/VMT) = k X (sL)^0.91 X W^1.02

| | | PM10 | PM2.5 |
|---|---|---|---|
| k | | 1.0 | 0.25 |
| sL | g/m2 | 0.10 | 0.10 |
| W | tons | 2.4 | 2.4 |
| EF | (g/VMT) | 0.300 | 0.075 |

Equation from: AP-42 13.2.1
sL and W (silt loading and vehicle weight) are CalEEMod default values.

**Vehicle Fugitive Dust Emissions on Paved Roads**
**Emissions in San Diego Air Pollution District (SDAPCD)**

| Activities | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | 10 | 0.01 | 0.00 | 374 | 0.0001 | 0.0000 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | 16 | 0.01 | 0.00 | 1,960 | 0.0006 | 0.0002 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 99 | 0.07 | 0.02 | 7,223 | 0.0024 | 0.0006 |
| Activity #10 Concrete Disposal (2023, 2024) | 0 | 0.00 | 0.00 | 0 | 0.0000 | 0.0000 |

**Emissions in South Coast Air Quality Management District (SCAQMD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #3 Trestle Material Supply (2022, 2023) | 540 | 0.36 | 0.09 | 37,966 | 0.0126 | 0.0031 |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | 134 | 0.09 | 0.02 | 16,890 | 0.0056 | 0.0014 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 1,281 | 0.85 | 0.21 | 143,357 | 0.0475 | 0.0119 |
| Activity #10 Concrete Disposal (2023, 2024) | 8,560 | 5.67 | 1.42 | 1,318,240 | 0.4366 | 0.1092 |

**Emissions in Mojave Desert Air Quality Management District (MDAQMD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #10 Concrete Disposal (2023, 2024) | 1,200 | 0.79 | 0.20 | 184,800 | 0.0612 | 0.0153 |

**Offshore - Full Removal of Conduits**
**Table 2.10c Vehicle Fugitive Dust Emissions on Paved Roads 2024**

Emission factor (g/VMT) = k X (sL)^0.91 X W^1.02

| | | PM10 | PM2.5 |
|---|---|---|---|
| k | | 1.0 | 0.25 |
| sL | g/m2 | 0.10 | 0.10 |
| W | tons | 2.4 | 2.4 |
| EF | (g/VMT) | 0.300 | 0.075 |

Equation from: AP-42 13.2.1
sL and W (silt loading and vehicle weight) are CalEEMod default values

**Vehicle Fugitive Dust Emissions on Paved Roads**
**Emissions in San Diego Air Pollution District (SDAPCD)**

| Activities | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | 16 | 0.01 | 0.00 | 390 | 0.0001 | 0.0000 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024) | 0 | 0.00 | 0.00 | 0 | 0.0000 | 0.0000 |
| Activity #6 Preparation for culvert demolition (2024) | 10 | 0.01 | 0.00 | 416 | 0.0001 | 0.0000 |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024' | 178 | 0.12 | 0.03 | 7,447 | 0.0025 | 0.0006 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025' | 5 | 0.00 | 0.00 | 478 | 0.0002 | 0.0000 |
| Activity #10 Concrete Disposal (2023, 2024) | 0 | 0.00 | 0.00 | 0 | 0.0000 | 0.0000 |

**Emissions in South Coast Air Quality Management District (SCAQMD)**

| Activities | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | 134 | 0.09 | 0.02 | 3,360 | 0.0011 | 0.0003 |
| Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024' | 1,380 | 0.91 | 0.23 | 64,860 | 0.0215 | 0.0054 |
| Activity #6 Preparation for culvert demolition (2024) | 90 | 0.06 | 0.01 | 3,584 | 0.0012 | 0.0003 |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024' | 10,328 | 6.84 | 1.71 | 441,954 | 0.1464 | 0.0366 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025' | 35 | 0.02 | 0.01 | 3,202 | 0.0011 | 0.0003 |
| Activity #10 Concrete Disposal (2023, 2024) | 8,560 | 5.67 | 1.42 | 1,115,268 | 0.3694 | 0.0923 |

**Emissions in Mojave Desert Air Quality Management District (MDAQMD)**

| Activities | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #7 Demolish RC Culverts and Backfill Trench (2024' | 1,380 | 0.91 | 0.23 | 59160 | 0.0196 | 0.0049 |
| Activity #10 Concrete Disposal (2023, 2024) | 1,200 | 0.79 | 0.20 | 156,240 | 0.0517 | 0.0129 |

**Offshore - Full Removal of Conduits**
**Table 2.10d Vehicle Fugitive Dust Emissions on Paved Roads 2025**

Emission factor (g/VMT) = k X (sL)^0.91 X W^1.02

| | | PM10 | PM2.5 |
|---|---|---|---|
| k | | 1.0 | 0.25 |
| sL | g/m2 | 0.10 | 0.10 |
| W | tons | 2.4 | 2.4 |
| EF | (g/VMT) | 0.300 | 0.075 |

Equation from: AP-42 13.2.1
sL and W (silt loading and vehicle weight) are CalEEMod default values.

**Vehicle Fugitive Dust Emissions on Paved Roads**
**Emissions in San Diego Air Pollution District (SDAPCD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | 16 | 0.01 | 0.00 | 198 | 0.0001 | 0.0000 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | 5 | 0.00 | 0.00 | 94 | 0.0000 | 0.0000 |
| Activity #9 Project Demobilization (2025) | 10 | 0.01 | 0.00 | 146 | 0.0000 | 0.0000 |

**Emissions in South Coast Air Quality Management District (SCAQMD)**

| | Maximum Daily Emissions | | | Annual Emissions | | |
|---|---|---|---|---|---|---|
| | Trip miles | PM10 | PM2.5 | Trip miles | PM10 | PM2.5 |
| Activities | VMT/day | lb/day | lb/day | VMT/year | ton/year | ton/year |
| Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3), (2023, 2024, 2025) | 134 | 0.09 | 0.02 | 1,702 | 0.0006 | 0.0001 |
| Activity #8 Restore Seawall, Revetment Wall, and Walkway (2024, 2025) | 35 | 0.02 | 0.01 | 626 | 0.0002 | 0.0001 |
| Activity #9 Project Demobilization (2025) | 690 | 0.46 | 0.11 | 14,454 | 0.0048 | 0.0012 |

**Offshore - Full Removal of Conduits**
**Table 2.11 Fugitive Dust Emissions - Onsite**

**Dust Emissions in South Coast Air Quality Management District (SCAQMD)**

**Dust from Debris Loading/Unloading 2023**

| | | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | Source | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Activity #10 Concrete Disposal: | Debris unloading from barge to contractor wharf | 450 | 68399 | 0.0203 | 0.0031 | 9.14 | 1.383 | 0.694 | 0.105 |
| | Debris loading from contractor wharf to truck | 450 | 68399 | 0.0203 | 0.0031 | 9.14 | 1.383 | 0.694 | 0.105 |
| | Maximum Total 2023 | | | | | 9.14 | 1.38 | 1.388 | 0.210 |

**Dust from Debris Loading/Unloading 2024**

| | | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | Source | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Activity #10 Concrete Disposal: | Debris unloading from barge to contractor wharf | 450 | 58627 | 0.0203 | 0.0031 | 9.14 | 1.383 | 0.595 | 0.090 |
| | Debris loading from contractor wharf to truck | 450 | 58627 | 0.0203 | 0.0031 | 9.14 | 1.383 | 0.595 | 0.090 |
| | Maximum Total 2023 | | | | | 9.14 | 1.38 | 1.190 | 0.180 |

Note:
Fugitive dust from materials loading/unloading are calculated using the following equations and parameters:
EF (lb/ton) = EF (TSP) X k
EF(TSP) 0.058 lb/ton (CalEEMod default for debris loading)
k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)

| | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|
| # days/year | 0 | 154 | 132 | 0 | 286 |
| Ton/year | 0 | 68399 | 58627 | 0 | 127026 |
| Daily (ton/day) | 0 | 450 | 450 | 0 | NA |

Note:
1. Amount of debris were provided by SCE on 3/17/2014
2. Debris loading and unloading will not occur on the same day.

**Dust from Concrete Debris Crushing 2023**

| | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|
| | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Activity #10 Concrete Disposal: | 450 | 68399 | 0.0024 | 0.0024 | 1.08 | 1.080 | 0.082 | 0.082 |

**Dust from Concrete Debris Crushing 2024**

| | Debris Quantity | | Emission Factors | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|---|---|---|
| | | | PM10 | PM2.5 | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | tons/day | ton/year | lb/ton | lb/ton | lb/day | lb/day | ton/year | ton/year |
| Activity #10 Concrete Disposal: | 450 | 58627 | 0.0024 | 0.0024 | 1.08 | 1.080 | 0.070 | 0.070 |

Note:
PM10 emission factors were obtained from EPA AP-42, Table 11.19.2-2, for tertiary Crushing. PM2.5 emission factor was assumed to be the same as PM10.

**Offshore - Full Removal of Conduits**
**Table 2.11 Fugitive Dust Emissions - Onsite**

**Summary of Onsite Dust Emissions 2023 in SCAQMD**

| | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|
| | | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | Source | lb/day | lb/day | ton/year | ton/year |
| Activity #10 Concrete Disposal: | Debris loading/unloading from barge to contractor wharf | 9.14 | 1.38 | 1.39 | 0.21 |
| | Concrete Crushing | 1.08 | 1.08 | 0.08 | 0.08 |
| Total Emissions | | 10.22 | 2.46 | 1.47 | 0.29 |

**Summary of Onsite Dust Emissions 2024 in SCAQMD**

| | | Daily Emissions | | Annual Emissions | |
|---|---|---|---|---|---|
| | | PM10 | PM2.5 | PM10 | PM2.5 |
| Activity | Source | lb/day | lb/day | ton/year | ton/year |
| Activity #10 Concrete Disposal: | Debris loading/unloading from barge to contractor wharf | 9.14 | 1.38 | 1.19 | 0.18 |
| | Concrete Crushing | 1.08 | 1.08 | 0.07 | 0.07 |
| Total Emissions | | 10.22 | 2.46 | 1.26 | 0.25 |

PAGE INTENTIONALLY LEFT BLANK