

## **APPENDIX E**

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### 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**

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**APPENDIX E1**

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Proposed Project  
Air Pollutant and GHG Emissions

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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)

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>22.05</b>	<b>190.12</b>	<b>150.34</b>	<b>0.43</b>	<b>33.99</b>	<b>15.73</b>	<b>1.94</b>	<b>15.24</b>	<b>13.42</b>	<b>0.04</b>	<b>3.91</b>	<b>1.57</b>

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

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>24.32</b>	<b>211.70</b>	<b>165.62</b>	<b>0.45</b>	<b>34.75</b>	<b>16.43</b>	<b>1.95</b>	<b>15.29</b>	<b>13.45</b>	<b>0.04</b>	<b>3.91</b>	<b>1.58</b>

**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)**

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>7.01</b>	<b>132.76</b>	<b>47.01</b>	<b>0.69</b>	<b>18.76</b>	<b>6.37</b>	<b>0.42</b>	<b>10.67</b>	<b>2.62</b>	<b>0.07</b>	<b>1.89</b>	<b>0.57</b>

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

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>15.44</b>	<b>213.43</b>	<b>105.53</b>	<b>0.69</b>	<b>18.76</b>	<b>8.45</b>	<b>0.43</b>	<b>10.83</b>	<b>2.73</b>	<b>0.07</b>	<b>1.89</b>	<b>0.58</b>

**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)**

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>4.17</b>	<b>111.81</b>	<b>34.17</b>	<b>0.19</b>	<b>4.38</b>	<b>2.83</b>	<b>0.23</b>	<b>6.17</b>	<b>1.81</b>	<b>0.01</b>	<b>0.35</b>	<b>0.18</b>

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

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>0.03</b>	<b>0.80</b>	<b>0.15</b>	<b>0.01</b>	<b>0.17</b>	<b>0.05</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

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 CO2e	SCAQMD CO2e	MDAQMD CO2e	ICAPCD CO2e	Total All Districts CO2e
Proposed Project Onshore		Metric tons/year	Metric tons/year	Metric tons/year	Metric tons/year	Metric tons/year
2019	1.3%	226	318	69	0	613
2020	3.2%	574	808	175	1	1,558
2021	21%	3,712	5,222	1,133	6	10,072
2022	20%	3,625	5,099	1,106	6	9,836
2023	26%	4,567	6,425	1,394	7	12,392
2024	23%	4,035	5,677	1,231	6	10,950
2025	5.9%	1,053	1,481	321	2	2,857
Proposed Project Offshore						
2023	NA	322	200	9	NA	531
<b>Total GHG Emissions (up to 3 miles offshore)</b>		<b>18,115</b>	<b>25,231</b>	<b>5,438</b>	<b>28</b>	<b>48,811</b>
<b>Amortized Over 30 Years (up to 3 miles offshore)</b>		<b>604</b>	<b>841</b>	<b>181</b>	<b>1</b>	<b>1,627</b>

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

	Activity Levels (%)	SDAPCD CO2e	SCAQMD CO2e	MDAQMD CO2e	ICAPCD CO2e	Total All Districts CO2e
Proposed Project Onshore		Metric tons/year	Metric tons/year	Metric tons/year	Metric tons/year	Metric tons/year
2019	1.3%	226	318	69	0	613
2020	3.2%	574	808	175	1	1,558
2021	21%	3,712	5,222	1,133	6	10,072
2022	20%	3,625	5,099	1,106	6	9,836
2023	26%	4,567	6,425	1,394	7	12,392
2024	23%	4,035	5,677	1,231	6	10,950
2025	5.9%	1,053	1,481	321	2	2,857
Proposed Project Offshore						
2023	NA	326	213	9	0	548
<b>Total GHG Emissions (all distance offshore)</b>		<b>18,119</b>	<b>25,244</b>	<b>5,438</b>	<b>28</b>	<b>48,828</b>
<b>Amortized Over 30 Years (all distance offshore)</b>		<b>604</b>	<b>841</b>	<b>181</b>	<b>1</b>	<b>1,628</b>

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	SCAQMD	MDAQMD	ICAPCD	SDAPCD	SCAQMD	MDAQMD	ICAPCD
	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e
	ton/year	ton/year	ton/year	ton/year	metric ton/year	metric ton/year	metric ton/year	metric ton/year
Proposed Project Onshore	5,034	7,082	1,536	7.9	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	5,389	7,303	1,546	7.9	4,889	6,625	1,402	7
30-year Amortized Emissions					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	SCAQMD	MDAQMD	ICAPCD	SDAPCD	SCAQMD	MDAQMD	ICAPCD
	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e
	ton/year	ton/year	ton/year	ton/year	metric ton/year	metric ton/year	metric ton/year	metric ton/year
Proposed Project Onshore	5,034	7,082	1,536	8	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	5,394	7,317	1,546	8	4,893	6,638	1,402	7
30-year Amortized Emissions					604	841	181	1

Note:

1 ton= 0.9072 metric ton

Proposed Project Onshore

Table 1.1 Construction Emission Summary - California

Air District	Sources	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
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	22,346.19	0.07	1.25	0.19	0.00	0.03	0.03	1,106.14
	<b>Total</b>	<b>15.33</b>	<b>127.35</b>	<b>99.81</b>	<b>0.34</b>	<b>31.65</b>	<b>13.53</b>	<b>55,537.48</b>	<b>1.77</b>	<b>13.78</b>	<b>12.14</b>	<b>0.04</b>	<b>3.85</b>	<b>1.52</b>	<b>5,034.07</b>
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
	<b>Total</b>	<b>3.57</b>	<b>101.96</b>	<b>23.78</b>	<b>0.56</b>	<b>14.72</b>	<b>4.77</b>	<b>58,826.33</b>	<b>0.35</b>	<b>10.17</b>	<b>2.15</b>	<b>0.07</b>	<b>1.79</b>	<b>0.54</b>	<b>7,081.94</b>
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
	<b>Total</b>	<b>4.17</b>	<b>111.81</b>	<b>34.17</b>	<b>0.19</b>	<b>4.38</b>	<b>2.83</b>	<b>20,627.95</b>	<b>0.23</b>	<b>6.17</b>	<b>1.81</b>	<b>0.01</b>	<b>0.35</b>	<b>0.18</b>	<b>1,536.13</b>
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
	<b>Total</b>	<b>0.03</b>	<b>0.80</b>	<b>0.15</b>	<b>0.01</b>	<b>0.17</b>	<b>0.05</b>	<b>654.29</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.85</b>

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

Equipment	SCE Data				Emission Factor Year	CalEEMod Default Load Factor	CalEEMod Emission Factors (100% load)								
	Number	HP per equipment	Hours per Year per equipment	Hours per day per equipmen			ROG	NOx	CO	SO2	PM10	PM2.5	CO2	CH4	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
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 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
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
<b>Total</b>	<b>13.52</b>	<b>96.98</b>	<b>94.15</b>	<b>0.31</b>	<b>4.27</b>	<b>3.97</b>	<b>30570.19</b>	<b>1.66</b>	<b>12.01</b>	<b>11.74</b>	<b>0.04</b>	<b>0.54</b>	<b>0.50</b>	<b>3696.70</b>

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 g/mile	NOx g/mile	CO g/mile	SO2 g/mile	PM10 g/mile	PM2.5 g/mile	CO2e 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

EMFAC2014 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 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
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
<b>Total</b>				<b>0.183</b>	<b>0.087</b>	<b>0.995</b>	<b>0.002</b>	<b>0.026</b>	<b>0.011</b>	<b>178.817</b>	<b>0.024</b>	<b>0.011</b>	<b>0.129</b>	<b>0.000</b>	<b>0.003</b>	<b>0.001</b>	<b>23.2</b>

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**

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

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

	<b>La Paz, AZ</b>	<b>Clive, UT or Oak Ridge, TN</b>	<b>Andrews, TX</b>
<b>Air Districts</b>	<b>RT Miles</b>	<b>RT Miles</b>	<b>RT Miles</b>
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" column 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**

<b>Year</b>	<b>Volume</b>	<b>Volume</b>	<b>Truck</b>	<b>Material</b>
	<b>Cubic Yards</b>	<b>Cubic Yards per Load</b>	<b>Loads</b>	<b>Type</b>
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
SDAPCD	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
	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
	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

Air Districts	Vehicles	Trip miles	Trip miles	Maximum 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
SDAPCD	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
<b>SDAPCD Total</b>	<b>664</b>	<b>109,958</b>	<b>0.101</b>	<b>2.989</b>	<b>0.573</b>	<b>0.022</b>	<b>0.152</b>	<b>0.060</b>	<b>2,324.2</b>	<b>0.009</b>	<b>0.254</b>	<b>0.049</b>	<b>0.002</b>	<b>0.013</b>	<b>0.005</b>	<b>192.6</b>	
SCAQMD	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
<b>SCAQMD Total</b>	<b>15,634</b>	<b>3,938,501</b>	<b>2.253</b>	<b>66.974</b>	<b>12.692</b>	<b>0.520</b>	<b>3.570</b>	<b>1.415</b>	<b>54,536.3</b>	<b>0.284</b>	<b>8.436</b>	<b>1.599</b>	<b>0.066</b>	<b>0.450</b>	<b>0.178</b>	<b>6,869.580</b>	
MDAQMD	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
<b>MDAQMD Total</b>	<b>2334</b>	<b>526,356</b>	<b>0.336</b>	<b>9.999</b>	<b>1.895</b>	<b>0.078</b>	<b>0.533</b>	<b>0.211</b>	<b>8,142.0</b>	<b>0.038</b>	<b>1.127</b>	<b>0.214</b>	<b>0.009</b>	<b>0.060</b>	<b>0.024</b>	<b>918.1</b>	
ICAPCD	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
	<b>ICAPCD Total</b>	<b>187.56</b>	<b>4,501</b>	<b>0.027</b>	<b>0.804</b>	<b>0.152</b>	<b>0.006</b>	<b>0.043</b>	<b>0.017</b>	<b>654.3</b>	<b>0.000</b>	<b>0.010</b>	<b>0.002</b>	<b>0.000</b>	<b>0.001</b>	<b>0.000</b>	<b>7.9</b>





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	715.2300

Note:

**BNSF Large Line Haul Locomotives**

- 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.
- 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.
- 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).
- SO2 emission factors were estimated based on the sulfur content of diesel fuel, and assumed 100% of the sulfur content converted to SO2.
- 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.
- 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.
- 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.
- 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
- 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**

- Available information indicates that Pacific Sun has four switch locomotives that are all manufactured prior to Tier 0 requirements (i.e. Uncontrolled).
- 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.
- 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.
- 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).
- SO2 emission factors were estimated based on the sulfur content of diesel fuel, and assumed 100% of the sulfur content converted to SO2.
- 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.
- 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**

Air Districts	Rail	Maximum Daily Emissions							Annual Emissions						
		VOC lb/day	NOx lb/day	CO lb/day	SO2 lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	VOC ton/year	NOx ton/year	CO ton/year	SO2 ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year
SDAPCD	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	21701.62	0.06	0.99	0.10	0.00	0.03	0.02	1074.23
	<b>SDAPCD Total</b>	<b>1.42</b>	<b>25.32</b>	<b>3.78</b>	<b>0.01</b>	<b>0.63</b>	<b>0.61</b>	<b>22346.19</b>	<b>0.07</b>	<b>1.25</b>	<b>0.19</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>1106.14</b>
SCAQMD	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
	<b>SCAQMD Total</b>	<b>1.32</b>	<b>34.98</b>	<b>11.09</b>	<b>0.04</b>	<b>0.79</b>	<b>0.77</b>	<b>4290.05</b>	<b>0.07</b>	<b>1.73</b>	<b>0.55</b>	<b>0.00</b>	<b>0.04</b>	<b>0.04</b>	<b>212.36</b>
MDAQMD	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
	<b>MDAQMD Total</b>	<b>3.83</b>	<b>101.81</b>	<b>32.27</b>	<b>0.12</b>	<b>2.30</b>	<b>2.23</b>	<b>12485.97</b>	<b>0.19</b>	<b>5.04</b>	<b>1.60</b>	<b>0.01</b>	<b>0.11</b>	<b>0.11</b>	<b>618.06</b>

**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
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**

Air Districts	Switching	Maximum Daily Emissions							Annual Emissions						
		ROG	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
SDAPCD	SDAPCD Total	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

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 hours/day	Annual Hours hours/year	Emission Factor		Daily Emissions		Annual Emissions	
				PM10 lb/hr	PM2.5 lb/hr	PM10 lb/day	PM2.5 lb/day	PM10 ton/year	PM2.5 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) =  $k \times (s)^{1.5} / (M)^{1.4}$  For PM10 and  $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$  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 acres	Grader VMT		Emission Factors		Daily Emissions		Annual Emissions	
				miles/day	miles/year	PM10 lb/VMT	PM2.5 lb/VMT	PM10 lb/day	PM2.5 lb/day	PM10 ton/year	PM2.5 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) =  $k \times 0.051 \times (S)^{2.0}$  for PM10 and  $k \times 0.040 \times (S)^{2.5}$  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 =  $As / Wb \times 43,560$  (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**

Activity	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
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:

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

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:

$$\text{EF (lb/ton)} = \text{EF (TSP)} \times k$$

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:

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

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**

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:	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)<sup>0.91</sup> X W<sup>1.02</sup>

		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**

Air Districts	Vehicles	Maximum Daily Emissions			Annual Emissions		
		Trip miles VMT/day	PM10 lb/day	PM2.5 lb/day	Trip miles VMT/year	PM10 ton/year	PM2.5 ton/year
SDAPCD	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
	<b>SDAPCD Total</b>	<b>664</b>	<b>0.440</b>	<b>0.110</b>	<b>109,958</b>	<b>0.036</b>	<b>0.009</b>
SCAQMD	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
	<b>SCAQMD Total</b>	<b>15,634</b>	<b>10.356</b>	<b>2.589</b>	<b>3,938,501</b>	<b>1.304</b>	<b>0.326</b>
MDAQMD	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
	<b>MDAQMD Total</b>	<b>2,334</b>	<b>1.546</b>	<b>0.387</b>	<b>526,356</b>	<b>0.174</b>	<b>0.044</b>
ICAPCD	Long-haul trucks - Route Andrews, TX	188	0.124	0.031	4,501	0.001	0.000
	<b>ICAPCD Total</b>	<b>188</b>	<b>0.124</b>	<b>0.031</b>	<b>4,501</b>	<b>0.001</b>	<b>0.000</b>

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.

Activities		Maximum Daily Emissions							Annual Emissions						
		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 #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
	<b>Subtotal Activity #1</b>	<b>2.28</b>	<b>19.23</b>	<b>15.10</b>	<b>0.06</b>	<b>0.86</b>	<b>0.72</b>	<b>5809.49</b>	<b>0.02</b>	<b>0.16</b>	<b>0.12</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>37.94</b>
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
	<b>Subtotal Activity #2</b>	<b>6.72</b>	<b>62.77</b>	<b>50.53</b>	<b>0.08</b>	<b>2.34</b>	<b>2.20</b>	<b>9512.08</b>	<b>0.03</b>	<b>0.30</b>	<b>0.26</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>57.28</b>
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
	<b>Subtotal Activity #3</b>	<b>3.49</b>	<b>30.99</b>	<b>26.38</b>	<b>0.04</b>	<b>1.09</b>	<b>1.06</b>	<b>5875.56</b>	<b>0.09</b>	<b>0.72</b>	<b>0.65</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>205.62</b>
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
	<b>Subtotal Activity #4</b>	<b>6.46</b>	<b>61.27</b>	<b>49.37</b>	<b>0.08</b>	<b>2.29</b>	<b>2.15</b>	<b>8910.08</b>	<b>0.03</b>	<b>0.29</b>	<b>0.25</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>54.27</b>
<b>Maximum Emissions in SDAPCD</b>		<b>6.72</b>	<b>62.77</b>	<b>50.53</b>	<b>0.08</b>	<b>2.34</b>	<b>2.20</b>	<b>9512.08</b>	<b>0.17</b>	<b>1.46</b>	<b>1.27</b>	<b>0.00</b>	<b>0.06</b>	<b>0.05</b>	<b>355.11</b>

Note:

- Activities #1 through 5 do not overlap.

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

Activities		Maximum Daily Emissions							Annual Emissions						
		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 #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
	<b>Subtotal Activity #1</b>	<b>0.02</b>	<b>0.51</b>	<b>0.10</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>	<b>418.61</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.09</b>
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
	<b>Subtotal Activity #2</b>	<b>3.23</b>	<b>29.70</b>	<b>22.83</b>	<b>0.03</b>	<b>1.09</b>	<b>1.00</b>	<b>3116.67</b>	<b>0.01</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.33</b>
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
	<b>Subtotal Activity #3</b>	<b>0.63</b>	<b>3.92</b>	<b>3.72</b>	<b>0.00</b>	<b>0.21</b>	<b>0.16</b>	<b>723.66</b>	<b>0.01</b>	<b>0.01</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>18.34</b>
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
	<b>Subtotal Activity #4</b>	<b>3.44</b>	<b>30.81</b>	<b>23.23</b>	<b>0.03</b>	<b>1.15</b>	<b>1.04</b>	<b>3196.68</b>	<b>0.01</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.73</b>
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
	<b>Subtotal Activity #5</b>	<b>3.22</b>	<b>27.34</b>	<b>22.03</b>	<b>0.13</b>	<b>4.04</b>	<b>1.60</b>	<b>12343.44</b>	<b>0.05</b>	<b>0.41</b>	<b>0.33</b>	<b>0.00</b>	<b>0.08</b>	<b>0.03</b>	<b>185.15</b>
<b>Maximum Emissions SCAQMD</b>		<b>3.44</b>	<b>30.81</b>	<b>23.23</b>	<b>0.13</b>	<b>4.04</b>	<b>1.60</b>	<b>12343.44</b>	<b>0.07</b>	<b>0.50</b>	<b>0.47</b>	<b>0.00</b>	<b>0.09</b>	<b>0.03</b>	<b>220.64</b>

Note:

- 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)

Activity		Maximum Daily Emissions							Annual Emissions						
		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 #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
<b>Maximum Emissions MDAQMD</b>		<b>0.03</b>	<b>0.77</b>	<b>0.15</b>	<b>0.01</b>	<b>0.04</b>	<b>0.02</b>	<b>627.92</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>9.42</b>

Note:

- 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

Activity		Maximum Daily Emissions							Annual Emissions						
		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 #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
	<b>Subtotal Activity #1</b>	<b>2.28</b>	<b>19.23</b>	<b>15.10</b>	<b>0.06</b>	<b>0.86</b>	<b>0.72</b>	<b>5809.49</b>	<b>0.02</b>	<b>0.16</b>	<b>0.12</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>37.94</b>
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
	<b>Subtotal Activity #2</b>	<b>8.99</b>	<b>84.35</b>	<b>65.81</b>	<b>0.10</b>	<b>3.10</b>	<b>2.90</b>	<b>11465.08</b>	<b>0.03</b>	<b>0.32</b>	<b>0.27</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>59.49</b>
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
	<b>Subtotal Activity #3</b>	<b>3.49</b>	<b>30.99</b>	<b>26.38</b>	<b>0.04</b>	<b>1.09</b>	<b>1.06</b>	<b>5875.56</b>	<b>0.09</b>	<b>0.72</b>	<b>0.65</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>205.62</b>
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
	<b>Subtotal Activity #4</b>	<b>8.73</b>	<b>82.85</b>	<b>64.65</b>	<b>0.10</b>	<b>3.06</b>	<b>2.85</b>	<b>10863.08</b>	<b>0.03</b>	<b>0.31</b>	<b>0.27</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>56.48</b>
<b>Maximum Emissions in SDAPCD</b>		<b>8.99</b>	<b>84.35</b>	<b>65.81</b>	<b>0.10</b>	<b>3.10</b>	<b>2.90</b>	<b>11465.08</b>	<b>0.18</b>	<b>1.51</b>	<b>1.31</b>	<b>0.00</b>	<b>0.06</b>	<b>0.05</b>	<b>359.54</b>

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

Activity		Maximum Daily Emissions							Annual Emissions						
		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 #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
	<b>Subtotal Activity #1</b>	<b>0.02</b>	<b>0.51</b>	<b>0.10</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>	<b>418.61</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.09</b>
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
	<b>Subtotal Activity #2</b>	<b>11.67</b>	<b>110.37</b>	<b>81.36</b>	<b>0.09</b>	<b>3.92</b>	<b>3.63</b>	<b>10535.74</b>	<b>0.01</b>	<b>0.11</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>13.96</b>
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
	<b>Subtotal Activity #3</b>	<b>0.63</b>	<b>3.92</b>	<b>3.72</b>	<b>0.00</b>	<b>0.21</b>	<b>0.16</b>	<b>723.66</b>	<b>0.01</b>	<b>0.02</b>	<b>0.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>19.72</b>
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
	<b>Subtotal Activity #4</b>	<b>11.87</b>	<b>111.48</b>	<b>81.75</b>	<b>0.09</b>	<b>3.98</b>	<b>3.68</b>	<b>10615.75</b>	<b>0.01</b>	<b>0.12</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>14.36</b>
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
	<b>Subtotal Activity #5</b>	<b>3.22</b>	<b>27.34</b>	<b>22.03</b>	<b>0.13</b>	<b>4.04</b>	<b>1.60</b>	<b>12343.44</b>	<b>0.05</b>	<b>0.41</b>	<b>0.33</b>	<b>0.00</b>	<b>0.08</b>	<b>0.03</b>	<b>185.15</b>
<b>Maximum Emissions SCAQMD</b>		<b>11.87</b>	<b>111.48</b>	<b>81.75</b>	<b>0.13</b>	<b>4.04</b>	<b>3.68</b>	<b>12343.44</b>	<b>0.08</b>	<b>0.66</b>	<b>0.58</b>	<b>0.00</b>	<b>0.10</b>	<b>0.04</b>	<b>235.29</b>

Note:

- 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
	Marine equipment	1	300	10	10	Offshore - SONGS Site
Activity #2 Offshore Mobilization	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
	1200 CFM Compressor	1	250	6	95	Offshore - SONGS Site
Activity #3 Unit 2/3, Fish Return, and Buoy Disposition	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
	Welding Set	1	10	4	10	Offshore - SONGS Site
Activity #4 Demobilization	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
	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
Activity #5 Concrete Disposal	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				Emission Factor Year	CalEEMod Default Load	CalEEMod Emission Factors (100% load)								
			HP	Hours per day	Days per year	Hours per Year			ROG	NOx	CO	SO2	PM10	PM2.5	CO2	CH4	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
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
Activity #4 Demobilization	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
	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 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 #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
	<b>Activity #1 sub-total</b>	<b>2.25</b>	<b>18.54</b>	<b>14.89</b>	<b>0.05</b>	<b>0.70</b>	<b>0.68</b>	<b>5237.03</b>	<b>0.02</b>	<b>0.15</b>	<b>0.11</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>35.50</b>
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
	<b>Activity #2 sub-total</b>	<b>2.66</b>	<b>23.38</b>	<b>21.11</b>	<b>0.06</b>	<b>0.99</b>	<b>0.92</b>	<b>5830.30</b>	<b>0.02</b>	<b>0.19</b>	<b>0.17</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>47.23</b>
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
	<b>Activity #3 sub-total</b>	<b>1.70</b>	<b>13.18</b>	<b>12.24</b>	<b>0.04</b>	<b>0.50</b>	<b>0.47</b>	<b>4146.78</b>	<b>0.08</b>	<b>0.63</b>	<b>0.58</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>196.97</b>
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
	<b>Activity #4 sub-total</b>	<b>2.40</b>	<b>21.88</b>	<b>19.94</b>	<b>0.05</b>	<b>0.94</b>	<b>0.87</b>	<b>5228.30</b>	<b>0.02</b>	<b>0.19</b>	<b>0.17</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>44.22</b>
<b>Maximum Equipment Emissions In SDAPCD</b>		<b>2.66</b>	<b>23.38</b>	<b>21.11</b>	<b>0.06</b>	<b>0.99</b>	<b>0.92</b>	<b>5830.30</b>	<b>0.14</b>	<b>1.16</b>	<b>1.04</b>	<b>0.00</b>	<b>0.05</b>	<b>0.04</b>	<b>323.92</b>

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

Activity	Equipment	Daily Emissions						Annual Emissions							
		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 #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
<b>Maximum Equipment Emissions In SCAQMD</b>		<b>2.94</b>	<b>22.04</b>	<b>20.23</b>	<b>0.08</b>	<b>0.82</b>	<b>0.76</b>	<b>7818.88</b>	<b>0.04</b>	<b>0.33</b>	<b>0.30</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>117.28</b>



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, P15N 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	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 #1 Onshore Bulkhead Work	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
	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Activity #4 Demobilization	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	
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	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 #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	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 #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:

- Emission factors were derived using the 2016 Port of Long Beach Air Emissions Inventory (Starcrest, 2017).
- Assist tugboat emission factors were used for estimating the emissions from the project tugboat.
- 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	Per Boat				Number of days	Hours Within 3 miles offshore/per boat				Total hours/boat				Notes
			Main Engine HP per boat	Auxiliary Engine HP per Boat	Max. Hours per day			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:

- 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.
- HP of Assist Tugboat was based on Connolly-Pacific engine information, provided by SCE on 11/28/2017.
- 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.
- Hours in each air district were provided by SCE.
- Activities #1 through 5 do not overlap.
- 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.
- 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.
- 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	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	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	0.00	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	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	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	0.00	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	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	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	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	0.00	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	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	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	0.00	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	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	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	0.00	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	0.00	10.05
<b>Maximum Boat Emissions SDAPCD</b>						<b>4.06</b>	<b>39.39</b>	<b>29.42</b>	<b>0.02</b>	<b>1.35</b>	<b>1.29</b>	<b>3681.78</b>	<b>0.03</b>	<b>0.30</b>	<b>0.23</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>28.74</b>

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	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	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	0.00	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	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	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	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	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	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	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	0.00	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	0.00	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	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	0.00	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	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	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	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	0.00	3.94	
<b>Maximum Boat Emissions SCAQMD</b>						<b>3.29</b>	<b>30.71</b>	<b>22.07</b>	<b>0.02</b>	<b>1.09</b>	<b>1.01</b>	<b>2817.84</b>	<b>0.01</b>	<b>0.08</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.82</b>	

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	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	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	0.00	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	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	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	0.00	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	0.00
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	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	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	0.00	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	0.00
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	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	0.00	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	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	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	0.00	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	0.00
<b>Maximum Boat Emissions SDAPCD</b>					<b>6.33</b>	<b>60.97</b>	<b>44.71</b>	<b>0.04</b>	<b>2.11</b>	<b>1.98</b>	<b>5634.78</b>	<b>0.04</b>	<b>0.35</b>	<b>0.27</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>33.17</b>

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	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	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	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	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	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	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	0.00	10.58	
<b>Maximum Boat Emissions SCAQMD</b>					<b>11.73</b>	<b>111.38</b>	<b>80.60</b>	<b>0.09</b>	<b>3.92</b>	<b>3.65</b>	<b>10236.91</b>	<b>0.03</b>	<b>0.25</b>	<b>0.18</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>22.48</b>	

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 Total	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
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 3.4 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	
		tons/day	ton/year	lb/ton	lb/ton	lb/day	lb/day	ton/year	ton/year
Activity #5 Concrete Disposal:	Debris unloading from barge to contractor wharf	80	2400	0.0203	0.0031	1.62	0.246	0.024	0.004
	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

$$EF \text{ (lb/ton)} = EF \text{ (TSP)} \times k$$

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	
	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) =  $k \times (sL)^{0.91} \times W^{1.02}$

		<b>PM10</b>	<b>PM2.5</b>
k		1.0	0.25
sL	g/m <sup>2</sup>	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)**

<b>Activities</b>	<b>Maximum Daily Emissions</b>			<b>Annual Emissions</b>		
	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>
	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	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)**

<b>Activities</b>	<b>Maximum Daily Emissions</b>			<b>Annual Emissions</b>		
	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>
	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)**

<b>Activities</b>	<b>Maximum Daily Emissions</b>			<b>Annual Emissions</b>		
	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>
	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**

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### **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)

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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)

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>49.76</b>	<b>432.16</b>	<b>347.46</b>	<b>0.69</b>	<b>41.89</b>	<b>23.37</b>	<b>4.33</b>	<b>37.31</b>	<b>31.80</b>	<b>0.07</b>	<b>4.65</b>	<b>2.30</b>

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

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>55.94</b>	<b>474.56</b>	<b>372.86</b>	<b>0.69</b>	<b>43.16</b>	<b>24.43</b>	<b>4.48</b>	<b>38.34</b>	<b>32.43</b>	<b>0.07</b>	<b>4.68</b>	<b>2.33</b>

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)

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>15.32</b>	<b>211.06</b>	<b>84.90</b>	<b>0.94</b>	<b>36.04</b>	<b>11.81</b>	<b>0.93</b>	<b>16.33</b>	<b>5.50</b>	<b>0.10</b>	<b>4.04</b>	<b>1.13</b>

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

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>33.86</b>	<b>338.25</b>	<b>161.09</b>	<b>0.94</b>	<b>39.87</b>	<b>15.01</b>	<b>1.38</b>	<b>19.45</b>	<b>7.37</b>	<b>0.10</b>	<b>4.14</b>	<b>1.21</b>

**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)**

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>4.54</b>	<b>122.72</b>	<b>36.29</b>	<b>0.28</b>	<b>6.68</b>	<b>3.49</b>	<b>0.24</b>	<b>6.62</b>	<b>1.90</b>	<b>0.02</b>	<b>0.44</b>	<b>0.21</b>

**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)**

Phases	Maximum Daily Emissions						Annual Emissions					
	ROG	NOx	CO	SO2	PM10	PM2.5	ROG	NOx	CO	SO2	PM10	PM2.5
	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
<b>Total Emissions</b>	<b>0.03</b>	<b>0.80</b>	<b>0.15</b>	<b>0.01</b>	<b>0.17</b>	<b>0.05</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

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%	226	318	69	0	613
2020	3.2%	574	808	175	1	1,558
2021	21%	3,712	5,222	1,133	6	10,072
2022	20%	3,625	5,099	1,106	6	9,836
2023	<b>26%</b>	4,567	6,425	1,394	7	12,392
2024	23%	4,035	5,677	1,231	6	10,950
2025	5.9%	1,053	1,481	321	2	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
<b>Total GHG Emissions (up to 3 miles offshore)</b>		<b>24,536</b>	<b>30,488</b>	<b>6,061</b>	<b>28</b>	<b>61,112</b>
<b>Amortized over 30 Years</b>		<b>818</b>	<b>1,016</b>	<b>202</b>	<b>1</b>	<b>2,037</b>

**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%	226	318	69	0	613
2020	3.2%	574	808	175	1	1,558
2021	21%	3,712	5,222	1,133	6	10,072
2022	20%	3,625	5,099	1,106	6	9,836
2023	<b>26%</b>	4,567	6,425	1,394	7	12,392
2024	23%	4,035	5,677	1,231	6	10,950
2025	5.9%	1,053	1,481	321	2	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
<b>Total GHG Emissions (all distance offshore)</b>		<b>24,618</b>	<b>31,666</b>	<b>6,061</b>	<b>28</b>	<b>62,373</b>
<b>Amortized over 30 Years</b>		<b>821</b>	<b>1,056</b>	<b>202</b>	<b>1</b>	<b>2,079</b>

1 ton= 0.9072 metric ton

Note:

- Proposed Project Onshore Activity Levels of each year were based on the percentages of waste generated during each year's activities.
- 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	SCAQMD	MDAQMD	ICAPCD	SDAPCD	SCAQMD	MDAQMD	ICAPCD
	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e
	ton/year	ton/year	ton/year	ton/year	metric ton/year	metric ton/year	metric ton/year	metric ton/year
Proposed Project Onshore	5,034	7,082	1,536	7.9	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	9,375	10,234	1,910	7.9	8,505	9,284	1,733	7
30-year Amortized Emissions					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	SCAQMD	MDAQMD	ICAPCD	SDAPCD	SCAQMD	MDAQMD	ICAPCD
	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e	CO2e
	ton/year	ton/year	ton/year	ton/year	metric ton/year	metric ton/year	metric ton/year	metric ton/year
Proposed Project Onshore	5,034	7,082	1,536	8	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	9,490	10,581	1,910	8	8,610	9,599	1,733	7
30-year Amortized Emissions					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 2.1 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

year	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
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
<b>Worst-Case</b>	<b>34.43</b>	<b>304.81</b>	<b>247.65</b>	<b>0.35</b>	<b>10.24</b>	<b>9.84</b>	<b>55473.82</b>	<b>2.56</b>	<b>23.52</b>	<b>19.66</b>	<b>0.03</b>	<b>0.80</b>	<b>0.78</b>	<b>4340.48</b>

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

year	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
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
<b>Worst-Case</b>	<b>11.76</b>	<b>109.10</b>	<b>61.12</b>	<b>0.38</b>	<b>21.32</b>	<b>7.04</b>	<b>44419.09</b>	<b>0.58</b>	<b>6.16</b>	<b>3.36</b>	<b>0.03</b>	<b>2.25</b>	<b>0.59</b>	<b>3152.15</b>

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

year	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
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
<b>Worst-Case</b>	<b>0.38</b>	<b>10.91</b>	<b>2.12</b>	<b>0.09</b>	<b>2.30</b>	<b>0.66</b>	<b>8967.23</b>	<b>0.02</b>	<b>0.46</b>	<b>0.09</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>	<b>374.33</b>

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)

year	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
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
<b>Worst-Case</b>	<b>40.60</b>	<b>347.21</b>	<b>273.04</b>	<b>0.35</b>	<b>11.52</b>	<b>10.90</b>	<b>60198.88</b>	<b>2.71</b>	<b>24.56</b>	<b>20.28</b>	<b>0.03</b>	<b>0.83</b>	<b>0.81</b>	<b>4456.25</b>

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

year	Maximum Daily Emissions							Annual Emissions						
	ROG	13.67	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
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
<b>Worst-Case</b>	<b>30.29</b>	<b>236.29</b>	<b>137.31</b>	<b>0.38</b>	<b>25.15</b>	<b>10.24</b>	<b>58594.26</b>	<b>1.03</b>	<b>9.28</b>	<b>5.22</b>	<b>0.03</b>	<b>2.34</b>	<b>0.67</b>	<b>3499.45</b>

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

year	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
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
<b>Worst-Case</b>	<b>0.38</b>	<b>10.91</b>	<b>2.12</b>	<b>0.09</b>	<b>2.30</b>	<b>0.66</b>	<b>8967.23</b>	<b>0.02</b>	<b>0.46</b>	<b>0.09</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>	<b>374.33</b>

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

Activities		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
Activity #1 Onshore Bulkhead Work	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
	Boats within 3 miles	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #1</b>	<b>2.47</b>	<b>21.57</b>	<b>15.95</b>	<b>0.05</b>	<b>0.86</b>	<b>0.81</b>	<b>5464.92</b>	<b>0.04</b>	<b>0.36</b>	<b>0.26</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>74.20</b>
Activity #2 Project Mobilization (Land & Marine), (2022)	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
	Fugitive Dust	NA	NA	NA	NA	0.05	0.01	NA	NA	NA	NA	NA	0.000	0.000	NA
	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
	<b>Subtotal Activity #2</b>	<b>9.69</b>	<b>80.73</b>	<b>69.78</b>	<b>0.07</b>	<b>3.08</b>	<b>2.83</b>	<b>12052.09</b>	<b>0.09</b>	<b>0.74</b>	<b>0.65</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>111.59</b>
Activity #3 Trestle Material Supply (2022, 2023)	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
	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
	<b>Subtotal Activity #3</b>	<b>3.55</b>	<b>26.11</b>	<b>22.35</b>	<b>0.01</b>	<b>0.84</b>	<b>0.72</b>	<b>3220.51</b>	<b>0.01</b>	<b>0.09</b>	<b>0.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>13.26</b>
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
<b>Maximum Emissions 2022 (SDAPCD)</b>		<b>12.16</b>	<b>102.30</b>	<b>85.74</b>	<b>0.13</b>	<b>3.94</b>	<b>3.64</b>	<b>17517.01</b>	<b>0.14</b>	<b>1.20</b>	<b>0.98</b>	<b>0.00</b>	<b>0.05</b>	<b>0.04</b>	<b>199.05</b>

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

Activities		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
Activity #1 Onshore Bulkhead Work	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
	Boats within 3 miles	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #1</b>	<b>0.03</b>	<b>1.02</b>	<b>0.11</b>	<b>0.00</b>	<b>0.11</b>	<b>0.03</b>	<b>415.28</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.41</b>
Activity #2 Project Mobilization (Land & Marine), (2022)	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
	Fugitive Dust	NA	NA	NA	NA	0.71	0.18	NA	NA	NA	NA	NA	0.01	0.00	NA
	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
	<b>Subtotal Activity #2</b>	<b>4.07</b>	<b>30.24</b>	<b>25.33</b>	<b>0.02</b>	<b>1.71</b>	<b>0.97</b>	<b>4665.89</b>	<b>0.03</b>	<b>0.22</b>	<b>0.19</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>37.06</b>
Activity #3 Trestle Material Supply (2022, 2023)	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
	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
	<b>Subtotal Activity #3</b>	<b>3.26</b>	<b>25.24</b>	<b>19.59</b>	<b>0.02</b>	<b>1.12</b>	<b>0.68</b>	<b>4056.62</b>	<b>0.01</b>	<b>0.09</b>	<b>0.04</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>22.93</b>
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
<b>Maximum Emissions 2022 (SCAQMD)</b>		<b>4.10</b>	<b>31.27</b>	<b>25.45</b>	<b>0.02</b>	<b>1.81</b>	<b>1.00</b>	<b>5081.16</b>	<b>0.04</b>	<b>0.31</b>	<b>0.24</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>	<b>61.40</b>

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

Activities		Maximum Daily Emissions							Annual Emissions						
		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 #1 Onshore Bulkhead Work	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
	Boats total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #1</b>	<b>2.47</b>	<b>21.57</b>	<b>15.95</b>	<b>0.05</b>	<b>0.86</b>	<b>0.81</b>	<b>5464.92</b>	<b>0.04</b>	<b>0.36</b>	<b>0.26</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>74.20</b>
Activity #2 Project Mobilization (Land & Marine), (2022)	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
	Fugitive Dust	NA	NA	NA	NA	0.05	0.01	NA	NA	NA	NA	0.000	0.000	NA	
	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
	<b>Subtotal Activity #2</b>	<b>13.32</b>	<b>107.24</b>	<b>92.76</b>	<b>0.07</b>	<b>3.90</b>	<b>3.54</b>	<b>14934.64</b>	<b>0.12</b>	<b>0.94</b>	<b>0.82</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>133.11</b>
Activity #3 Trestle Material Supply (2022, 2023)	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	0.000	0.000	NA	
	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
	<b>Subtotal Activity #3</b>	<b>6.64</b>	<b>47.31</b>	<b>41.09</b>	<b>0.01</b>	<b>1.48</b>	<b>1.25</b>	<b>5583.04</b>	<b>0.02</b>	<b>0.13</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>17.99</b>
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
<b>Maximum Emissions 2022 (SDAPCD)</b>		<b>15.79</b>	<b>128.81</b>	<b>108.71</b>	<b>0.13</b>	<b>4.76</b>	<b>4.35</b>	<b>20399.56</b>	<b>0.17</b>	<b>1.43</b>	<b>1.19</b>	<b>0.00</b>	<b>0.05</b>	<b>0.05</b>	<b>225.30</b>

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

Activities		Maximum Daily Emissions							Annual Emissions						
		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 #1 Onshore Bulkhead Work	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	0.00	0.00	NA	
	Boats total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #1</b>	<b>0.03</b>	<b>1.02</b>	<b>0.11</b>	<b>0.00</b>	<b>0.11</b>	<b>0.03</b>	<b>415.28</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.41</b>
Activity #2 Project Mobilization (Land & Marine), (2022)	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
	Fugitive Dust	NA	NA	NA	NA	0.71	0.18	NA	NA	NA	NA	0.01	0.00	NA	
	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
	<b>Subtotal Activity #2</b>	<b>14.97</b>	<b>109.77</b>	<b>94.25</b>	<b>0.02</b>	<b>4.17</b>	<b>3.11</b>	<b>13313.54</b>	<b>0.12</b>	<b>0.80</b>	<b>0.71</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>	<b>101.63</b>
Activity #3 Trestle Material Supply (2022, 2023)	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	0.00	0.00	NA	
	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
	<b>Subtotal Activity #3</b>	<b>12.53</b>	<b>88.84</b>	<b>75.83</b>	<b>0.02</b>	<b>3.04</b>	<b>2.28</b>	<b>11144.21</b>	<b>0.03</b>	<b>0.21</b>	<b>0.16</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>37.10</b>
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
<b>Maximum Emissions 2022 (SCAQMD)</b>		<b>15.00</b>	<b>110.79</b>	<b>94.37</b>	<b>0.02</b>	<b>4.27</b>	<b>3.14</b>	<b>13728.81</b>	<b>0.14</b>	<b>1.02</b>	<b>0.86</b>	<b>0.00</b>	<b>0.04</b>	<b>0.03</b>	<b>140.14</b>

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

Activities		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
Activity #3 Trestle Material Supply (2022, 2023)	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
	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
	<b>Subtotal Activity #3</b>	<b>3.50</b>	<b>25.37</b>	<b>15.98</b>	<b>0.01</b>	<b>0.81</b>	<b>0.69</b>	<b>3220.40</b>	<b>0.04</b>	<b>0.32</b>	<b>0.22</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>50.69</b>
Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025)	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
	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
	Fugitive Dust	NA	NA	NA	NA	0.01	0.00	NA	NA	NA	NA	NA	0.001	0.000	NA
	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
	<b>Subtotal Activity #4</b>	<b>10.01</b>	<b>86.20</b>	<b>68.57</b>	<b>0.07</b>	<b>2.92</b>	<b>2.78</b>	<b>13497.19</b>	<b>0.76</b>	<b>7.15</b>	<b>6.14</b>	<b>0.01</b>	<b>0.25</b>	<b>0.25</b>	<b>1223.10</b>
Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024)	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
	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
	Fugitive Dust	NA	NA	NA	NA	0.07	0.02	NA	NA	NA	NA	NA	0.002	0.001	NA
	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
	<b>Subtotal Activity #5</b>	<b>24.42</b>	<b>218.61</b>	<b>179.08</b>	<b>0.28</b>	<b>7.32</b>	<b>7.06</b>	<b>41976.63</b>	<b>1.76</b>	<b>16.06</b>	<b>13.30</b>	<b>0.02</b>	<b>0.54</b>	<b>0.52</b>	<b>3066.70</b>
Activity #10 Concrete Disposal (2023, 2024)	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
	boats within 3 miles	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
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
<b>Maximum Emissions 2023 (SDAPCD)</b>		<b>34.43</b>	<b>304.81</b>	<b>247.65</b>	<b>0.35</b>	<b>10.24</b>	<b>9.84</b>	<b>55473.82</b>	<b>2.56</b>	<b>23.52</b>	<b>19.66</b>	<b>0.03</b>	<b>0.80</b>	<b>0.78</b>	<b>4340.48</b>

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

Activities		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
Activity #3 Trestle Material Supply (2022, 2023)	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
	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
	<b>Subtotal Activity #3</b>	<b>3.22</b>	<b>23.16</b>	<b>13.42</b>	<b>0.02</b>	<b>1.11</b>	<b>0.67</b>	<b>3996.41</b>	<b>0.03</b>	<b>0.22</b>	<b>0.11</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>	<b>78.29</b>
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	0.39	0.00	0.02	0.01	220.37	0.01	0.01	0.03	0.00	0.00	0.00	9.46
	Fugitive Dust	NA	NA	NA	NA	0.09	0.02	NA	NA	NA	NA	NA	0.006	0.001	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
	<b>Subtotal Activity #4</b>	<b>3.16</b>	<b>21.42</b>	<b>13.09</b>	<b>0.00</b>	<b>0.75</b>	<b>0.56</b>	<b>2582.90</b>	<b>0.01</b>	<b>0.01</b>	<b>0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>9.46</b>
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	0.35	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
	Fugitive Dust	NA	NA	NA	NA	0.85	0.21	NA	NA	NA	NA	NA	0.047	0.012	NA
	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
	<b>Subtotal Activity #5</b>	<b>4.39</b>	<b>31.17</b>	<b>20.08</b>	<b>0.02</b>	<b>1.98</b>	<b>1.10</b>	<b>5325.90</b>	<b>0.22</b>	<b>1.58</b>	<b>1.07</b>	<b>0.00</b>	<b>0.11</b>	<b>0.06</b>	<b>253.12</b>
Activity #10 Concrete Disposal (2023, 2024)	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
	boats within 3 miles	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #10</b>	<b>4.20</b>	<b>56.51</b>	<b>27.95</b>	<b>0.36</b>	<b>18.59</b>	<b>5.38</b>	<b>36510.29</b>	<b>0.32</b>	<b>4.35</b>	<b>2.15</b>	<b>0.03</b>	<b>2.12</b>	<b>0.52</b>	<b>2811.29</b>
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
<b>Maximum Emissions 2023 (SCAQMD)</b>		<b>11.76</b>	<b>109.10</b>	<b>61.12</b>	<b>0.38</b>	<b>21.32</b>	<b>7.04</b>	<b>44419.09</b>	<b>0.58</b>	<b>6.16</b>	<b>3.36</b>	<b>0.03</b>	<b>2.25</b>	<b>0.59</b>	<b>3152.15</b>

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

Activities		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
	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 Disposal (2023, 2024)	boats within 3 miles	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	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
	<b>Maximum Emissions 2023 (MDAQMD)</b>	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

Activities		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
Activity #3 Trestle Material Supply (2022, 2023)	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
	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
	<b>Subtotal Activity #3</b>	<b>6.59</b>	<b>46.57</b>	<b>28.68</b>	<b>0.01</b>	<b>1.45</b>	<b>1.22</b>	<b>5582.93</b>	<b>0.06</b>	<b>0.46</b>	<b>0.31</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>	<b>67.23</b>
Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025)	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
	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
	Fugitive Dust	NA	NA	NA	NA	0.01	0.00	NA	NA	NA	NA	NA	0.001	0.000	NA
	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
	<b>Subtotal Activity #4</b>	<b>13.10</b>	<b>107.40</b>	<b>81.27</b>	<b>0.07</b>	<b>3.56</b>	<b>3.31</b>	<b>15859.72</b>	<b>0.76</b>	<b>7.15</b>	<b>6.14</b>	<b>0.01</b>	<b>0.25</b>	<b>0.25</b>	<b>1223.10</b>
Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024)	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
	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
	Fugitive Dust	NA	NA	NA	NA	0.07	0.02	NA	NA	NA	NA	NA	0.002	0.001	NA
	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
	<b>Subtotal Activity #5</b>	<b>27.51</b>	<b>239.81</b>	<b>191.78</b>	<b>0.28</b>	<b>7.96</b>	<b>7.59</b>	<b>44339.16</b>	<b>1.89</b>	<b>16.95</b>	<b>13.83</b>	<b>0.02</b>	<b>0.56</b>	<b>0.54</b>	<b>3165.92</b>
Activity #10 Concrete Disposal (2023, 2024)	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
	Boats total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
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
<b>Maximum Emissions 2023 (SDAPCD)</b>		<b>40.60</b>	<b>347.21</b>	<b>273.04</b>	<b>0.35</b>	<b>11.52</b>	<b>10.90</b>	<b>60198.88</b>	<b>2.71</b>	<b>24.56</b>	<b>20.28</b>	<b>0.03</b>	<b>0.83</b>	<b>0.81</b>	<b>4456.25</b>

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

Activities		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
Activity #3 Trestle Material Supply (2022, 2023)	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	0.013	0.003	NA	
	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
	<b>Subtotal Activity #3</b>	<b>12.49</b>	<b>86.75</b>	<b>51.51</b>	<b>0.02</b>	<b>3.03</b>	<b>2.26</b>	<b>11084.00</b>	<b>0.09</b>	<b>0.67</b>	<b>0.38</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>	<b>127.90</b>
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	0.39	0.00	0.02	0.01	220.37	0.01	0.01	0.03	0.00	0.00	0.00	9.46
	Fugitive Dust	NA	NA	NA	NA	0.09	0.02	NA	NA	NA	NA	0.006	0.001	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
	<b>Subtotal Activity #4</b>	<b>12.43</b>	<b>85.02</b>	<b>51.18</b>	<b>0.00</b>	<b>2.67</b>	<b>2.16</b>	<b>9670.49</b>	<b>0.01</b>	<b>0.01</b>	<b>0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>9.46</b>
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	0.35	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
	Fugitive Dust	NA	NA	NA	NA	0.85	0.21	NA	NA	NA	NA	0.047	0.012	NA	
	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
	<b>Subtotal Activity #5</b>	<b>13.66</b>	<b>94.77</b>	<b>58.17</b>	<b>0.02</b>	<b>3.90</b>	<b>2.69</b>	<b>12413.49</b>	<b>0.61</b>	<b>4.25</b>	<b>2.67</b>	<b>0.00</b>	<b>0.19</b>	<b>0.13</b>	<b>550.80</b>
Activity #10 Concrete Disposal (2023, 2024)	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
	Boats total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	<b>Subtotal Activity #10</b>	<b>4.20</b>	<b>56.51</b>	<b>27.95</b>	<b>0.36</b>	<b>18.59</b>	<b>5.38</b>	<b>36510.29</b>	<b>0.32</b>	<b>4.35</b>	<b>2.15</b>	<b>0.03</b>	<b>2.12</b>	<b>0.52</b>	<b>2811.29</b>
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
<b>Maximum Emissions 2023 (SCAQMD)</b>		<b>30.29</b>	<b>236.29</b>	<b>137.31</b>	<b>0.38</b>	<b>25.15</b>	<b>10.24</b>	<b>58594.26</b>	<b>1.03</b>	<b>9.28</b>	<b>5.22</b>	<b>0.03</b>	<b>2.34</b>	<b>0.67</b>	<b>3499.45</b>

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

Activities		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
	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
	Boats total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Activity #10 Concrete Disposal (2023, 2024)	Subtotal Activity #1	<b>0.17</b>	<b>5.14</b>	<b>0.97</b>	<b>0.04</b>	<b>1.07</b>	<b>0.31</b>	<b>4186.11</b>	<b>0.01</b>	<b>0.40</b>	<b>0.08</b>	<b>0.00</b>	<b>0.08</b>	<b>0.02</b>	<b>322.33</b>
	<b>Maximum Emissions 2023 (MDAQMD)</b>	<b>0.17</b>	<b>5.14</b>	<b>0.97</b>	<b>0.04</b>	<b>1.07</b>	<b>0.31</b>	<b>4186.11</b>	<b>0.01</b>	<b>0.40</b>	<b>0.08</b>	<b>0.00</b>	<b>0.08</b>	<b>0.02</b>	<b>322.33</b>



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

Activities		Maximum Daily Emissions							Annual Emissions						
		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)	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
	<b>Subtotal Activity #4</b>	<b>9.88</b>	<b>84.28</b>	<b>68.31</b>	<b>0.07</b>	<b>2.82</b>	<b>2.68</b>	<b>13495.88</b>	<b>0.15</b>	<b>1.39</b>	<b>1.22</b>	<b>0.00</b>	<b>0.05</b>	<b>0.05</b>	<b>244.59</b>
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
	<b>Subtotal Activity #5</b>	<b>23.93</b>	<b>210.69</b>	<b>178.04</b>	<b>0.28</b>	<b>6.90</b>	<b>6.72</b>	<b>41729.28</b>	<b>0.70</b>	<b>6.26</b>	<b>5.37</b>	<b>0.01</b>	<b>0.20</b>	<b>0.20</b>	<b>1273.47</b>
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
	<b>Subtotal Activity #6</b>	<b>9.69</b>	<b>74.19</b>	<b>63.51</b>	<b>0.17</b>	<b>2.70</b>	<b>2.47</b>	<b>19026.83</b>	<b>0.21</b>	<b>1.64</b>	<b>1.46</b>	<b>0.00</b>	<b>0.06</b>	<b>0.06</b>	<b>451.94</b>
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
	<b>Subtotal Activity #7</b>	<b>14.93</b>	<b>108.53</b>	<b>82.23</b>	<b>0.15</b>	<b>3.78</b>	<b>3.25</b>	<b>21806.37</b>	<b>0.30</b>	<b>2.18</b>	<b>1.63</b>	<b>0.00</b>	<b>0.08</b>	<b>0.06</b>	<b>429.09</b>
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
	<b>Subtotal Activity #8</b>	<b>1.83</b>	<b>14.47</b>	<b>14.27</b>	<b>0.05</b>	<b>0.57</b>	<b>0.53</b>	<b>4346.65</b>	<b>0.09</b>	<b>0.72</b>	<b>0.71</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>217.32</b>
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
	<b>Subtotal Activity #10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
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
<b>Maximum Emissions 2024 (SDAPCD)</b>		<b>23.93</b>	<b>210.69</b>	<b>178.04</b>	<b>0.28</b>	<b>6.90</b>	<b>6.72</b>	<b>41729.28</b>	<b>1.45</b>	<b>12.19</b>	<b>10.39</b>	<b>0.02</b>	<b>0.42</b>	<b>0.40</b>	<b>2616.40</b>

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

Activities		Maximum Daily Emissions							Annual Emissions						
		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)	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		<b>3.16</b>	<b>21.42</b>	<b>13.06</b>	<b>0.00</b>	<b>0.75</b>	<b>0.56</b>	<b>2580.28</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.85</b>
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		<b>4.41</b>	<b>31.41</b>	<b>20.13</b>	<b>0.02</b>	<b>2.06</b>	<b>1.12</b>	<b>5543.30</b>	<b>0.10</b>	<b>0.68</b>	<b>0.46</b>	<b>0.00</b>	<b>0.05</b>	<b>0.03</b>	<b>112.26</b>
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		<b>3.12</b>	<b>21.44</b>	<b>12.87</b>	<b>0.00</b>	<b>0.71</b>	<b>0.55</b>	<b>2577.09</b>	<b>0.05</b>	<b>0.32</b>	<b>0.19</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>39.73</b>
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		<b>2.06</b>	<b>44.87</b>	<b>11.76</b>	<b>0.33</b>	<b>9.26</b>	<b>2.75</b>	<b>34395.34</b>	<b>0.04</b>	<b>0.96</b>	<b>0.25</b>	<b>0.01</b>	<b>0.20</b>	<b>0.06</b>	<b>736.80</b>
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		<b>0.02</b>	<b>0.01</b>	<b>0.13</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>	<b>24.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.11</b>
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		<b>1.28</b>	<b>34.48</b>	<b>7.45</b>	<b>0.27</b>	<b>17.78</b>	<b>4.63</b>	<b>28547.16</b>	<b>0.08</b>	<b>2.25</b>	<b>0.49</b>	<b>0.02</b>	<b>1.75</b>	<b>0.39</b>	<b>1858.65</b>
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
<b>Maximum Emissions 2024 (SCAQMD)</b>		<b>5.69</b>	<b>65.89</b>	<b>27.57</b>	<b>0.33</b>	<b>19.85</b>	<b>5.75</b>	<b>34419.44</b>	<b>0.27</b>	<b>4.21</b>	<b>1.40</b>	<b>0.03</b>	<b>2.01</b>	<b>0.49</b>	<b>2750.40</b>

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

Activities		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
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
<b>Maximum Emissions 2024 (MDAQMD)</b>		<b>0.38</b>	<b>10.91</b>	<b>2.12</b>	<b>0.09</b>	<b>2.30</b>	<b>0.66</b>	<b>8967.23</b>	<b>0.02</b>	<b>0.46</b>	<b>0.09</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>	<b>374.33</b>

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

Activities		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
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
	<b>Subtotal Activity #4</b>	<b>12.97</b>	<b>105.47</b>	<b>81.01</b>	<b>0.07</b>	<b>3.46</b>	<b>3.22</b>	<b>15858.41</b>	<b>0.15</b>	<b>1.39</b>	<b>1.22</b>	<b>0.00</b>	<b>0.05</b>	<b>0.05</b>	<b>244.59</b>
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
	<b>Subtotal Activity #5</b>	<b>27.02</b>	<b>231.89</b>	<b>190.74</b>	<b>0.28</b>	<b>7.54</b>	<b>7.25</b>	<b>44091.81</b>	<b>0.76</b>	<b>6.64</b>	<b>5.60</b>	<b>0.01</b>	<b>0.22</b>	<b>0.21</b>	<b>1315.99</b>
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
	<b>Subtotal Activity #6</b>	<b>12.77</b>	<b>95.38</b>	<b>76.21</b>	<b>0.17</b>	<b>3.34</b>	<b>3.00</b>	<b>21389.35</b>	<b>0.26</b>	<b>1.96</b>	<b>1.65</b>	<b>0.00</b>	<b>0.07</b>	<b>0.06</b>	<b>487.37</b>
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	NA	NA	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
	<b>Subtotal Activity #7</b>	<b>14.93</b>	<b>108.53</b>	<b>82.23</b>	<b>0.15</b>	<b>3.78</b>	<b>3.25</b>	<b>21806.37</b>	<b>0.30</b>	<b>2.18</b>	<b>1.63</b>	<b>0.00</b>	<b>0.08</b>	<b>0.06</b>	<b>277.83</b>
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
	<b>Subtotal Activity #8</b>	<b>1.83</b>	<b>14.47</b>	<b>14.27</b>	<b>0.05</b>	<b>0.57</b>	<b>0.53</b>	<b>4346.65</b>	<b>0.09</b>	<b>0.72</b>	<b>0.71</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>217.32</b>
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
	<b>Subtotal Activity #10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
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
<b>Maximum Emissions 2024 (SDAPCD)</b>		<b>27.02</b>	<b>231.89</b>	<b>190.74</b>	<b>0.28</b>	<b>7.54</b>	<b>7.25</b>	<b>44091.81</b>	<b>1.56</b>	<b>12.89</b>	<b>10.81</b>	<b>0.02</b>	<b>0.44</b>	<b>0.41</b>	<b>2543.11</b>

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

Activities		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
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
	<b>Subtotal Activity #4</b>	<b>12.42</b>	<b>85.01</b>	<b>51.15</b>	<b>0.00</b>	<b>2.67</b>	<b>2.16</b>	<b>9667.87</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.85</b>
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
	<b>Subtotal Activity #5</b>	<b>13.68</b>	<b>95.00</b>	<b>58.22</b>	<b>0.02</b>	<b>3.98</b>	<b>2.72</b>	<b>12630.88</b>	<b>0.26</b>	<b>1.83</b>	<b>1.14</b>	<b>0.00</b>	<b>0.08</b>	<b>0.05</b>	<b>239.83</b>
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
	<b>Subtotal Activity #6</b>	<b>12.39</b>	<b>85.04</b>	<b>50.96</b>	<b>0.00</b>	<b>2.63</b>	<b>2.15</b>	<b>9664.68</b>	<b>0.19</b>	<b>1.28</b>	<b>0.77</b>	<b>0.00</b>	<b>0.04</b>	<b>0.03</b>	<b>146.04</b>
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
	<b>Subtotal Activity #7</b>	<b>2.06</b>	<b>44.87</b>	<b>11.76</b>	<b>0.33</b>	<b>9.26</b>	<b>2.75</b>	<b>34395.34</b>	<b>0.04</b>	<b>0.96</b>	<b>0.25</b>	<b>0.01</b>	<b>0.20</b>	<b>0.06</b>	<b>729.56</b>
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
	<b>Subtotal Activity #8</b>	<b>0.02</b>	<b>0.01</b>	<b>0.13</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>	<b>24.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.11</b>
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
	<b>Subtotal Activity #10</b>	<b>4.13</b>	<b>54.42</b>	<b>27.77</b>	<b>0.35</b>	<b>18.52</b>	<b>5.32</b>	<b>36396.95</b>	<b>0.27</b>	<b>3.56</b>	<b>1.83</b>	<b>0.02</b>	<b>1.80</b>	<b>0.44</b>	<b>2376.74</b>
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
<b>Maximum Emissions 2024 (SCAQMD)</b>		<b>17.81</b>	<b>149.42</b>	<b>86.00</b>	<b>0.38</b>	<b>22.50</b>	<b>8.03</b>	<b>49027.83</b>	<b>0.77</b>	<b>7.63</b>	<b>4.00</b>	<b>0.03</b>	<b>2.12</b>	<b>0.58</b>	<b>3495.13</b>

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

Activities		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
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
<b>Maximum Emissions 2024 (MDAQMD)</b>		<b>0.38</b>	<b>10.91</b>	<b>2.12</b>	<b>0.09</b>	<b>2.30</b>	<b>0.66</b>	<b>8967.23</b>	<b>0.02</b>	<b>0.46</b>	<b>0.09</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>	<b>374.33</b>

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

Activities		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
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
	<b>Subtotal Activity #4</b>	<b>9.73</b>	<b>82.19</b>	<b>68.00</b>	<b>0.07</b>	<b>2.72</b>	<b>2.58</b>	<b>13495.03</b>	<b>0.10</b>	<b>0.86</b>	<b>0.72</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>143.56</b>
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
	<b>Subtotal Activity #8</b>	<b>1.73</b>	<b>12.80</b>	<b>13.73</b>	<b>0.05</b>	<b>0.50</b>	<b>0.46</b>	<b>4347.10</b>	<b>0.02</b>	<b>0.13</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>43.47</b>
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
	<b>Subtotal Activity #9</b>	<b>10.04</b>	<b>83.08</b>	<b>69.90</b>	<b>0.07</b>	<b>3.07</b>	<b>2.86</b>	<b>12298.65</b>	<b>0.07</b>	<b>0.61</b>	<b>0.49</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>90.18</b>
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
<b>Maximum Emissions 2025 (SDAPCD)</b>		<b>11.46</b>	<b>94.99</b>	<b>81.73</b>	<b>0.12</b>	<b>3.22</b>	<b>3.05</b>	<b>17842.13</b>	<b>0.19</b>	<b>1.59</b>	<b>1.35</b>	<b>0.00</b>	<b>0.06</b>	<b>0.05</b>	<b>277.21</b>

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

Activities		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
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
	<b>Subtotal Activity #4</b>	<b>3.15</b>	<b>21.41</b>	<b>13.03</b>	<b>0.00</b>	<b>0.75</b>	<b>0.56</b>	<b>2577.42</b>	<b>0.03</b>	<b>0.19</b>	<b>0.12</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>22.21</b>
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
	<b>Subtotal Activity #8</b>	<b>0.02</b>	<b>0.01</b>	<b>0.11</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>	<b>23.23</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.21</b>
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
	<b>Subtotal Activity #9</b>	<b>4.36</b>	<b>30.78</b>	<b>20.89</b>	<b>0.00</b>	<b>1.51</b>	<b>1.00</b>	<b>3705.50</b>	<b>0.03</b>	<b>0.23</b>	<b>0.15</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>29.03</b>
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
<b>Maximum Emissions 2025 (SCAQMD)</b>		<b>4.36</b>	<b>30.78</b>	<b>20.89</b>	<b>0.00</b>	<b>1.51</b>	<b>1.00</b>	<b>3705.50</b>	<b>0.06</b>	<b>0.42</b>	<b>0.27</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>	<b>51.44</b>

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

Activities		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
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
	<b>Subtotal Activity #4</b>	<b>9.73</b>	<b>82.19</b>	<b>68.00</b>	<b>0.07</b>	<b>2.72</b>	<b>2.58</b>	<b>13495.03</b>	<b>0.10</b>	<b>0.86</b>	<b>0.72</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>143.56</b>
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
	<b>Subtotal Activity #8</b>	<b>1.73</b>	<b>12.80</b>	<b>13.73</b>	<b>0.05</b>	<b>0.50</b>	<b>0.46</b>	<b>4347.10</b>	<b>0.02</b>	<b>0.13</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>43.47</b>
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
	<b>Subtotal Activity #9</b>	<b>13.67</b>	<b>109.59</b>	<b>86.82</b>	<b>0.07</b>	<b>3.89</b>	<b>3.57</b>	<b>15181.20</b>	<b>0.10</b>	<b>0.80</b>	<b>0.61</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>	<b>111.71</b>
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
<b>Maximum Emissions 2025 (SDAPCD)</b>		<b>13.67</b>	<b>109.59</b>	<b>86.82</b>	<b>0.12</b>	<b>3.89</b>	<b>3.57</b>	<b>17842.13</b>	<b>0.22</b>	<b>1.79</b>	<b>1.47</b>	<b>0.00</b>	<b>0.06</b>	<b>0.06</b>	<b>298.73</b>

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

Activities		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
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
	<b>Subtotal Activity #4</b>	<b>12.42</b>	<b>85.01</b>	<b>51.12</b>	<b>0.00</b>	<b>2.67</b>	<b>2.16</b>	<b>9665.01</b>	<b>0.11</b>	<b>0.76</b>	<b>0.46</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>85.99</b>
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
	<b>Subtotal Activity #8</b>	<b>0.02</b>	<b>0.01</b>	<b>0.11</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>	<b>23.23</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.21</b>
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
	<b>Subtotal Activity #9</b>	<b>15.25</b>	<b>110.30</b>	<b>71.66</b>	<b>0.00</b>	<b>3.97</b>	<b>3.14</b>	<b>12353.15</b>	<b>0.12</b>	<b>0.81</b>	<b>0.50</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>	<b>93.60</b>
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
<b>Maximum Emissions 2025 (SCAQMD)</b>		<b>15.25</b>	<b>110.30</b>	<b>71.66</b>	<b>0.00</b>	<b>3.97</b>	<b>3.14</b>	<b>12353.15</b>	<b>0.23</b>	<b>1.57</b>	<b>0.96</b>	<b>0.00</b>	<b>0.05</b>	<b>0.04</b>	<b>179.80</b>



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	Number of Equipment	per equipment				Emission Factor Year	CalEEMod Default Load	CalEEMod Emission Factors (100% load)								
			HP	Hours per day	Days per year	Hours per Year			ROG	NOx	CO	SO2	PM10	PM2.5	CO2	CH4	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	
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
Activity #3 Trestle Material Supply (2022, 2023)	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
	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
Activity #10 Concrete Disposal (2023, 2024)	140 Ton Rail Crane	1	300	8	147	SONGS Site
	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	Number of Equipment	per equipment				Emission Factor Year	CalEEMod Default Load	CalEEMod Emission Factors (100% load)								
			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 #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
	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
Activity #4 Trestle Construction, Crane Mobilization and Deconstruction (U2 and U3) (2023, 2024, 2025)	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
	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
Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024)	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
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
	Generator	2	85	6.4	50	SONGS Site
Activity #6 Preparation for Culvert Demolition (2024)	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
	50 Ton Crane	2	300	3.2	35	SONGS Site
Activity #7 Demolish RC Culverts & Backfill Trench (2024)	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
	50 Ton Crane	1	300	4	100	SONGS Site
	Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025)	D4 Dozer	1	300	2	100
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
100 Ton Crawler Crane		1	350	8	132	POLB
Activity #10 Concrete Disposal (2023, 2024)	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	Number of Equipment	per equipment				Emission Factor Year	CalEEMod Default Load	CalEEMod Emission Factors (100% load)									
			HP	Hours per day	Days per year	Hours per Year			ROG	NOx	CO	SO2	PM10	PM2.5	CO2	CH4	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	0.029	469.711	0.152	474.0	
Activity #6 Preparation for Culvert Demolition (2024)	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	
	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	
Activity #8 Restore Seawall, Revetment Wall and Walkway (2024, 2025)	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	
	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
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	Number of Equipment	per equipment				Emission Factor Year	CalEEMod Default Load	CalEEMod Emission Factors (100% load)								
			HP	Hours per day	Days per year	Hours per Year			ROG	NOx	CO	SO2	PM10	PM2.5	CO2	CH4	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
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	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 #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	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 #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	
	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 and 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	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 #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	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 #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	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 #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	Between 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	Between 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	Between 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 - 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 County
	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 County
	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	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	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
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
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

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	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
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
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

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 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	ROG 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	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	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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year	
				hours/day	days/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	0.000	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	0.000	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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year	
				hours/day	days/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	0.000	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	0.000	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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year	
					hours/day	days/year															
					lb/day	lb/day															lb/day
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	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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year
					hours/day	days/year														
					lb/day	lb/day														
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
	Crew Boat	0	4	88	1	88	3	264	1	88	3	264	Between Dana Point and SONGS
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	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
Activity #5 Remove Unit 2 and Unit 3 Intake and Discharge Pipes (2023, 2024)	Crew Boat	0	4	220	1	220	3	660	1	220	3	660	Between SONGS and POLB
	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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year
					hours/day	days/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
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
Activity #5 Remove Unit 2 and Unit 3 Intake and 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

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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year
					hours/day	days/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
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
Activity #5 Remove Unit 2 and Unit 3 Intake and 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

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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year	
					hours/day	days/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	0.000	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	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	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 and 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 lb/day	NOx lb/day	CO lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day	CO2e lb/day	ROG ton/year	NOx ton/year	CO ton/year	SOx ton/year	PM10 ton/year	PM2.5 ton/year	CO2e ton/year
					hours/day	days/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
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 and 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	hours/year	hours/day	hours/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 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	0.000	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	
	Work Boat	1	300	140	0	44	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	0.000	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	0.000	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	
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	0.000	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	0.000	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	0.000	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	0.000	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	

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 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	ROG 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	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	lb/day	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
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	lb/day	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	0.01
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	lb/day	lb/day	lb/day	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
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	lb/day	lb/day	lb/day	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
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

Harbor Craft	Engine Type	Port of Long Beach Harbor Craft Emissions by Vessel and Engine Type 2016								Port of Long Beach Vessels				Derived Emission Factors							
		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
		tons	tons	tons	tons	tons	tons	tons	metric tons			HP/engine	hours/engine	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
	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) =  $k \times (sL)^{0.91} \times W^{1.02}$

		<b>PM10</b>	<b>PM2.5</b>
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)**

<b>Activities</b>	<b>Maximum Daily Emissions</b>			<b>Annual Emissions</b>		
	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>
	<b>VMT/day</b>	<b>lb/day</b>	<b>lb/day</b>	<b>VMT/year</b>	<b>ton/year</b>	<b>ton/year</b>
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)**

<b>Activities</b>	<b>Maximum Daily Emissions</b>			<b>Annual Emissions</b>		
	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>	<b>Trip miles</b>	<b>PM10</b>	<b>PM2.5</b>
	<b>VMT/day</b>	<b>lb/day</b>	<b>lb/day</b>	<b>VMT/year</b>	<b>ton/year</b>	<b>ton/year</b>
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)<sup>0.91</sup> X W<sup>1.02</sup>

		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)**

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)	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)**

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 #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) =  $k \times (sL)^{0.91} \times W^{1.02}$

		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)<sup>0.91</sup> X W<sup>1.02</sup>

		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	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)**

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	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

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
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

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
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:  
 $EF \text{ (lb/ton)} = EF \text{ (TSP)} \times k$   
 $EF \text{ (TSP)} = 0.058 \text{ lb/ton}$  (CalEEMod default for debris loading)  
 $k = \text{Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)}$

	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

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 #10 Concrete Disposal:	450	68399	0.0024	0.0024	1.08	1.080	0.082	0.082

Dust from Concrete Debris Crushing 2024

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 #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

Activity	Source	Daily Emissions		Annual Emissions	
		PM10	PM2.5	PM10	PM2.5
		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

Activity	Source	Daily Emissions		Annual Emissions	
		PM10	PM2.5	PM10	PM2.5
		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

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