South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

September 18, 2024

Jodi L. Clifford
Chief, Planning Division
U.S. Army Corps of Engineers, Los Angeles District
915 Wilshire Boulevard, Suite 1109
Los Angeles, CA 90017-3409

RE: San Clemente Shoreline Protection Project General Conformity Determination

To. Ms. Clifford,

This letter is in response to your letter dated September 13, 2024 requesting South Coast Air Quality Management District (South Coast AQMD) to accommodate the anticipated emissions from the San Clemente Shoreline Protection Project in the Air Quality Management Plan (AQMP)/State Implementation Plan (SIP) emissions budget for general conformity purposes.

The general conformity determination process is intended to demonstrate that a proposed Federal action will not: (1) cause or contribute to new violations of a national ambient air quality standard (NAAQS); (2) interfere with provisions in the applicable SIP for maintenance of any NAAQS; (3) increase the frequency or severity of existing violations of any standard; or (4) delay the timely attainment of any standard. As such, for general conformity determination, the proposed federal action needs to conform to the latest approved SIP/AQMP.

The South Coast Air Basin (Basin) is designated as an extreme non-attainment area for ozone, serious non-attainment for PM2.5 and maintenance area for Carbon Monoxide. To accommodate projects subject to general conformity requirements and to streamline the review process, general conformity budgets for NOx and VOC emissions were established in an AQMP. The 2016 AQMP[1], which is the latest plan approved by U.S. EPA, established set aside accounts to accommodate emissions subject to general conformity requirements. The set-aside accounts include 2 tons per day (tpd) or 730 tons per year (tpy) of NOx and 0.5 tpd or 182.5 tpy of VOC each year starting in 2017 through 2030, and 0.5 tpd (182.5 tpy) of NOx and 0.2 tpd (73 tpy) of VOC each year in 2031 and thereafter. Emissions from this set-aside account are granted on a first-come-first-serve basis, and as of September 2024, a limited amount of NOx and VOC emissions remain available. It's important to note that the general conformity set-aside accounts are subject to change with future AQMPs. The 2022 AQMP[2], for instance, introduces control measure EGM-02, which seeks to eliminate the general conformity set-aside account after 2031. Instead, EGM-02 proposes to require that new federal project emissions be accommodated with

[1] https://www.aqmd.gov/home/air-quality/air-quality-management-plans/final-2016-aqmp

[2] https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan

appropriate mitigation or offset of the increased emissions. The 2022 AQMP was submitted to U.S. EPA via California Air Resource Board (CARB) in February 2023 and is currently under review.

The proposed project involves constructing a 50-foot-wide beach nourishment along a 3,412-foot shoreline stretch, using approximately 251,000 cubic yards of compatible sediment, with renourishment every six years over a 50-year federal participation period. The anticipated emissions from the project exceed the General Conformity de minimis thresholds for NOx in 2024. These emissions arise from hopper dredge operations, support tugboat and crew boat vessel emissions, off-road construction equipment, and on-road emissions related to worker commutes and heavy-duty diesel truck mobilization and demobilization.

South Coast AQMD staff has reviewed the proposed project emissions based on the information provided in your letter. We have determined that the NOx emissions exceeding the de minimis thresholds can be accommodated within the general conformity budgets established in the 2016 AQMP. Table 1 below shows the emissions from construction activities during January, April, and Fall 2024 that are accommodated within the SIP set-aside budget established in the 2016 AQMP. Emissions from the Federal agency's future renourishment actions are not included in this determination.

Table 1. Proposed Project Emissions in 2024 Accommodated in 2016 AQMP General Conformity Budgets (tons per year)

Pollutants	Emission Phase	2024
NOx	Construction	19.30

In summary, based on our evaluation, the proposed project conducted or to be conducted in 2024 will conform to the latest EPA approved AQMP as the project's 2024 emissions are accommodated within the AQMP's emissions budgets, and the proposed project is not expected to result in any new or additional violations of the NAAQS or impede the projected attainment of the NAAQS in 2024.

If you have any questions, please contact me at (909) 396-2856 or srees@aqmd.gov or Dr. Sang-Mi Lee, Rules and Planning Manager at (909)-396-3169 or slee@aqmd.gov.

Sincerely,

Sarah Rees

Sarah L. Rees, Ph.D.
Deputy Executive Officer
Planning, Rule Development & Implementation
South Coast Air Quality Management District

Attachments:
Letter from U.S. Army Corps of Engineers dated September 13, 2024
General conformity emission calculation Sheet

eCC: Tom Kelly, US EPA Region IX
Barbara Baird, South Coast AQMD
Ian MacMillan, South Coast AQMD
Sang-Mi Lee, South Coast AQMD
Barbara Radlein, South Coast AQMD
Marc Carreras Sospedra, South Coast AQMD
Rui Zhang, South Coast AQMD

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT
915 WILSHIRE BOULEVARD SUITE 1109
LOS ANGELES CA 90017-3409

September 13, 2024

Ms. Sang-Mi Lee
Program Supervisor
Air Quality Modeling/Emissions Inventory
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Dear Ms. Lee:

This letter, which supersedes our previous letter to you dated September 10, 2024, concerns the United States Army Corps of Engineers' (USACE) San Clemente Shoreline Protection Project (Project) as it relates to the general conformity rule. Established under the Clean Air Act (CAA) section 176(c) [42 USC 7506(c)], the general conformity rule ensures that actions taken by Federal agencies do not interfere with a state's plan to attain and maintain National Ambient Air Quality Standards (NAAQS). Under the general conformity rule, federal agencies must work with state and local governments, in nonattainment or maintenance areas, to ensure that federal actions conform to the established, applicable State Implementation Plan (SIP). To do so, the federal agency must either determine that the action is exempt from general conformity regulations or make a conformity determination consistent with the general conformity requirements.

The Project was authorized by the Water Resources Reform and Development Act of 2014, Public Law 113-121, section 7002 for the purpose of reducing coastal storm damages by constructing a berm along the San Clemente shoreline, Orange County, California. The authorized Project includes construction of an approximate 50-foot-wide beach nourishment project along a 3,412-foot-long stretch of shoreline using approximately 251,000 cubic yards (cy) of compatible sediment, with renourishment on the average of every 6 years over a 50-year period of federal participation.

Construction of the Project was initiated in December 2023. However, due in part to equipment damage and sediment compatibility issues encountered at the Oceanside borrow area in San Diego County, construction was temporarily paused in January 2024. To allow for operational flexibility, the USACE prepared a revised supplemental environmental assessment (SEA) in March 2024 for use of the Surfside-Sunset borrow area, a 106-acre borrow site offshore Surfside-Sunset beaches located 29 miles to the north of San Clemente, as an alternate borrow site for initial construction of the Project. In April 2024, during the construction window evaluated in the March 2024 Revised SEA, the USACE contractor placed 115,000 cy of compatible sediment on San Clemente Beach as part of the initial construction of the Project.

The proposed Federal action involves the continuation and completion of the initial construction of the Project using the Surfside-Sunset borrow area for placement of approximately 86,000 cy of compatible sediment on San Clemente Beach. The Federal action would be constructed with hopper dredging equipment with pump ashore capability and conventional earth moving equipment. The hopper dredge would pump out the dredge material via a 24-inch pipeline. The actual construction schedule would be dependent upon factors such as availability of funding, contract schedule, and weather conditions. Construction of the Federal action would start in 2024 and end in 2024; however, if due to unforeseen circumstances, all work is not finished in 2024, the Federal action may carry over into 2025. The proposed Federal action includes the use of Tier 4 engines for all on-road heavy duty diesel trucks and off-road earthmoving equipment.

The proposed Federal action is located within the South Coast Air Basin (SCAB). For Federal actions, a conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by the Federal action would equal or exceed any of the applicability rates (40 CFR § 93.153(b)). Because the SCAB is in extreme nonattainment for ozone, pursuant to 40 CFR § 93.153(b)(1), the applicability rates for ozone precursors, volatile organic compounds (VOC) and nitrogen oxides (NOx), are each 10 tons per calendar year.

Based on the USACE's applicability analysis, the total of direct and indirect emissions caused by the Federal action would exceed the applicability rate specified in 40 CFR § 93.153(b) for ozone (NO_x as precursor) in construction year 2024 (see Table 1). Therefore, the USACE is required to have a General Conformity Determination for this criteria pollutant. The USACE's draft General Conformity Determination is available to view or download at: https://www.spl.usace.army.mil/Missions/Civil-Works/Projects-and-Studies/San-Clemente-Shoreline/. In anticipation of this requirement, USACE staff coordinated with South Coast Air Quality Management District (SCAQMD) staff during meetings held on April 10, 2024, and August 8, 2024. Coordination also took place via emails and phone conversations in the latter half of August 2024.

According to 40 CFR § 93.161, the state or local agency responsible for implementing and enforcing the SIP can develop and adopt an emissions budget to be used for demonstrating conformity under 40 CFR § 93.158(a)(1). The SCAQMD's 2016 Air Quality Management Plan (AQMP) addresses general conformity budgets beginning on page VI-D-1 of Appendix VI and on pages 111-2-85 through 11-2-88 of Appendix III. To streamline the general conformity process for federal projects and to facilitate general conformity determinations, the 2016 AQMP includes a NOx general conformity budget of 2.0 tons per day (tpd) on an annual basis from 2017 to 2030, and a budget of 0.5 tpd of NOx in 2031.

Table 1: Comparison Emissions to General Conformity Applicability Rates Applicable in the SCAB

Pollutant	General Conformity Applicability Rates (tons/year)	Construction Completed January 2024[1] (tons/year)	Construction Completed April 2024 (tons/year)	Construction Remaining in 2024[2] (tons/year)	Total Emissions 2024 (tons/year)
Ozone (VOC precursor)	10	0.05	0.53	0.50	1.09
Ozone (NOx precursor)	10	0.79	9.37	9.13	19.30
Carbon Monoxide (CO)	100	0.19	1.76	1.73	3.68
Nitrogen Dioxide (NO_2)	100	0.79	9.37	9.13	19.30
Particulate Matter (PM_{10})	100	0.02	0.12	0.11	0.25
Particulate Matter ($PM_{2.5}$)	70	0.01	0.11	0.10	0.23
Lead (Pb)	N/A		-	-	-
Sulfur Dioxide (SO_2)	N/A		-	-	-

[1] Work in January 2024 used the Oceanside borrow area which is in the San Diego Air Basin. Emissions shown for this column are a portion of the overall emissions that occurred in the SCAB where San Clemente is located.

[2] Use of Tier 4 engines applied to on-road heavy duty diesel trucks and off-road loaders and dozers per environmental commitment.

The general conformity budgets in the 2016 AQMP are not set aside for specific facilities per se but were developed in the anticipation of the construction and operation of certain development projects in the SCAB that are expected over the next decade. Under the 2016 AQMP, emissions from general conformity projects are tracked by the SCAQMD's tracking system and debited from this set-aside budget on a first come-first-served basis until the budget has been exhausted. The U.S. Environmental Protection Agency approved the general conformity budgets in the 2016 AQMP on October 1, 2019. Federal agencies can use these budgets to demonstrate that their federal actions conform to the SIP through a letter from the State and SCAQMD confirming that the Federal action emissions are accounted for in the SIP's general conformity budgets.

The USACE requests the SCAQMD provide written confirmation that the 2024 ozone (NO_x precursor) emissions for Project are accounted for in the SIPs general conformity budget, which would be used by the USACE to demonstrate conformity under 40 CFR § 93.158(a)(1).

If you have any questions regarding the project, please contact Mr. Kenneth Wong at (213) 452-3847, or by email at kenneth.wong@usace.army.mil. Thank you for your attention to this document.

Sincerely,

Tiffany Bostwick

Digitally signed by Tiffany Bostwick
Date: 2024.09.12 16:59:31 -07'00'

Jodi L. Clifford
Chief, Planning Division

San Clemente Shoreline Protection Project, Orange County, California

Appendix A-1

Estimation Spreadsheet Printouts

Air Quality Emission Estimates and Methodology

September 2024

US Army Corps of Engineers
Los Angeles District

Estimates of days needed to dredge volume placed on beach

		Cycles	Volume	Total Volume	Dredging	Contigency	Max Dredging
Phase	Borrow Site	per Day	Per Cycle (cy)	(cy)	Days	Days	Days
Construction (Jan 2024)	Oceanside				6		
Construction (Apr 2024)	Surfside-Sunset	2	2,193	115,000	26		26
Construction (Fall 2024)	Surfside-Sunset	2	2,193	86,000	20	6	26

Estimates of emission from construction conducted at Oceanside Borrow Area from Dec 2023 into Jan 2024

The hopper dredge (Bayport) dredged for 6 days in Jaunary. Dredging emissions are prorated between two air basins (SCAB and SDAB).
Distance from Oceanside borrow area to T-Street Beach in San Clemente is approximately 20 mi. Of the 20 mi, 3 miles are in the SCAB.
Emissions from support vessels and off-road equipment are in SCAB.
mob/demob emissions are in SCAB.

CONSTRUCTION

		Equipment Data			Emission Factors (lb/hr)							Emissions lbs/day						
		Qty	Hrs/Day	load Factor	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CO	NOx	VOC	SOx	PM10	PM2.5	CO2
Dredge (*)	Hopper Dredging	1	3	n/a	5.80	33.96	1.78	0.05	0.37		2177.712	17.40	101.88	5.34	0.15	1.11	1.00	6533.14
	Hopper Transiting	1	18	n/a	3.67	23.72	1.25	0.03	0.23		1377.966	66.06	426.96	22.50	0.54	4.14	3.73	24803.39
	Hopper Discharging	1	3	n/a	9.09	45.49	2.37	0.06	0.56		3413	27.27	136.47	7.11	0.18	1.68	1.51	10239.00
											Proration sail SCAB (3 mi/20 mi) per day	9.91	64.04	3.38	0.08	0.62	0.56	3720.51
											Total SCAB (tons) prorated sail + discahrge ops for 6 days	0.11	0.60	0.03	0.00	0.01	0.01	41.88
											Proration sail SDAB (17 mi/20 mi)	56.15	362.92	19.13	0.46	3.52	3.17	21082.88
											Total SDAB (tons) prorated sail + digging ops for 6 days	0.22	1.39	0.07	0.00	0.01	0.01	82.85
Support Vessels (**)	Tug Boat (Prop)	1	2	0.5	6.34	21.50	1.81	0.01	1.24	1.11	1521.12	6.34	21.5	1.81	0.014	1.24	1.105	1521.118
	Tug Boat (Aux)	1	2	0.5	0.49	0.93	0.13	0.00	0.079	0.07	69.500	0.491	0.93	0.128	0.001	0.079	0.071	69.5
	Crew (prop)	1	2	0.38	0.79	3.40	0.27	0.00	0.14	0.12	189.90	0.6004	2.584	0.2052	0.00152	0.1064	0.09424	144.324
	Crew (aux)	1	2	0.5	0.34	0.81	0.11	0.00	0.04	0.04	34.70	0.337	0.809	0.112	0	0.043	0.039	34.7
Off Road Equip (***)	Dozer	2	8	n/a	0.68	1.17	0.17	0.00	0.05		239.08	10.93542	18.71218	2.796515	0.039223	0.727982	0.655184	3825.26536
	Loader	1	4	n/a	0.43	0.31	0.06	0.00	0.01		108.61	1.729516	1.252218	0.235166	0.004803	0.055192	0.049673	434.44529
											Daily Total (lb/day)	20.43	45.79	5.29	0.06	2.25	2.01	6029.35
										6	Days Total (lb)	122.6	274.7244	31.72128	0.363275	13.50944	12.08458	36176.1159
											Annual Total (ton)	0.0613	0.137362	0.015861	0.000182	0.006755	0.006042	18.0880579

MOB/DEMOB FOR 2 TUG BOATS

	Tug Boat (Prop)	2	2	0.5	6.34	21.50	1.81	0.01	1.24	1.11	1521.12	12.68	43	3.62	0.028	2.48	2.21	3042.236
	Tug Boat (Aux)	2	2	0.5	0.49	0.93	0.13	0.00	0.079	0.07	69.500	0.982	1.86	0.256	0.002	0.158	0.142	139
											Daily Total (lb/day)	13.662	44.86	3.876	0.03	2.638	2.352	3181.236
										2	Days Total (lb)	27.324	89.72	7.752	0.06	5.276	4.704	6362.472
											Annual Total (ton)	0.013662	0.04486	0.003876	0.00003	0.002638	0.002352	3.181236

		Equipment Data			Emission Factors (lb/mi)							Emissions lbs/day						
		Qty	Miles/Day	Days	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CO	NOx	VOC	SOx	PM10	PM2.5	CO2
Worker commutes	Passenger Vehicles	10	50	6	0.0036	0.0003	0.0005	0.0000	0.0001	0.0001	1.1106	10.7583	0.9216	1.3541	0.0324	0.2903	0.1923	3331.8471
mob/demob	Heavy Duty Diesel Truc	2	50	10	0.0044	0.0097	0.0008	0.0000	0.0005	0.0004	4.1955	4.4444	9.7437	0.8401	0.0393	0.5077	0.3832	4195.5294
											Daily Total (lb)	15.2028	10.6653	2.1942	0.0717	0.7979	0.5755	7527.3765
											Annual Total (ton)	0.01	0.01	0.00	0.00	0.00	0.00	3.76
											Total Emission for Work in Jaunary (SCAB) (tons)	**0.19**	**0.79**	**0.05**	**0.00**	**0.02**	**0.01**	**66.91**
											Total Emission for Work in Jaunary (SDAB) (tons)	**0.22**	**1.39**	**0.07**	**0.00**	**0.01**	**0.01**	**82.85**

* Dredge emission factors provided by Manson. Emission factors include ALL engines on dredge. Calculations based on actual fuel consumption
Because factors are based on fuel consumptions, changes in load factors are integrated in real time into the different phases of dredge operation (dredging, transiting, discharge)
No PM 2.5 factors provided. Used PM 2.5 = 0.9 x PM10 per recommendation from AQMD for offroad equipment

** support vessels emission factors come from Sacramento AQMD Harbor Craft emission factors calulator. Tug boat emission factors assume 2 propulsion engines.

*** land side equipment emission factors come from SCAQMD off-road emission factors for construciton year 2024. emission factors for rubber tired loaders and dozers are composites
No PM 2.5 factors provided. Used PM 2.5 = 0.9 x PM10 per recommendation from AQMD for offroad equipment

**** CO2 emission factor for dredge was not provided by dredge contractor. The CO2 emission factors used comes from
Sacramento AQMD Harbor Craft emission factors calulator. Dredge emission factors assume 2 propulsion engines. EF CO2 = 3,413 lb/day
CO2 emission factors were adjusted per method detailed in AQ appendix.

Emission Year 2024	ROG	CO	NOX	SOX	PM	CO2	CH4
bber Tired Dozers Composite	0.1747822	0.683464	1.169511	0.002451	0.045499	239.0791	0.01577
ɔber Tired Loaders Composite	0.0587914	0.432379	0.313055	0.001201	0.013798	108.6113	0.005305

Emission Estimates Using Surfside-Sunset Borrow Area for April 2024

Off-Road Emissions

		Equipment Data			Emission Factors (lb/hr)							Emissions lbs/day						
		Qty	Hrs/Day	load Factor	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CO	NOx	VOC	SOx	PM10	PM2.5	CO2
Dredge (*)	Hopper Dredging	1	3	n/a	5.80	33.96	1.78	0.05	0.37		2177.7118	17.40	101.88	5.34	0.15	1.11	1.00	6533.14
	Hopper Transiting	1	18	n/a	3.67	23.72	1.25	0.03	0.23		1377.9659	66.06	426.96	22.50	0.54	4.14	3.73	24803.39
	Hopper Discharging	1	3	n/a	9.09	45.49	2.37	0.06	0.56		3413	27.27	136.47	7.11	0.18	1.68	1.51	10239.00
Support Vessels (**)	Tug Boat (Prop)	1	2	0.5	6.34	21.50	1.81	0.01	1.24	1.11	1521.12	6.34	21.5	1.81	0.014	1.24	1.105	1521.118
	Tug Boat (Aux)	1	2	0.5	0.49	0.93	0.13	0.00	0.079	0.07	69.500	0.491	0.93	0.128	0.001	0.079	0.071	69.5
	Crew (prop)	1	2	0.38	0.79	3.40	0.27	0.00	0.14	0.12	189.90	0.6004	2.584	0.2052	0.00152	0.1064	0.09424	144.324
	Crew (aux)	1	2	0.5	0.34	0.81	0.11	0.00	0.04	0.04	34.70	0.337	0.809	0.112	0	0.043	0.039	34.7
Off Road Equip (***)	Dozer	2	8	n/a	0.68	1.17	0.17	0.00	0.05		239.08	10.935421	18.71218	2.796515	0.039223	0.727982	0.655184	3825.265356
	Loader	1	4	n/a	0.43	0.31	0.06	0.00	0.01		108.61	1.7295157	1.252218	0.235166	0.004803	0.055192	0.049673	434.4452904
											Daily Total (lb/day)	131.16	711.10	40.24	0.93	9.18	8.25	47604.87
									Figure from 'dredge days' tal	26	Days Total (lb)	3439.0752	18644.82	1055.003	24.39872	240.7389	216.342	1248189.813
											Annual Total (ton)	1.7195376	9.322412	0.527501	0.012199	0.120369	0.108171	624.0949067
MOB/DEMOB FOR 2 TUG BOATS																		
	Tug Boat (Prop)	2	2	0.5	6.34	21.50	1.81	0.01	1.24	1.11	1521.12	12.68	43	3.62	0.028	2.48	2.21	3042.236
	Tug Boat (Aux)	2	2	0.5	0.49	0.93	0.13	0.00	0.079	0.07	69.500	0.982	1.86	0.256	0.002	0.158	0.142	139
											Daily Total (lb/day)	13.662	44.86	3.876	0.03	2.638	2.352	3181.236
										2	Days Total (lb)	27.324	89.72	7.752	0.06	5.276	4.704	6362.472
											Annual Total (ton)	0.013662	0.04486	0.003876	0.00003	0.002638	0.002352	3.181236

On Road Emissions

		Equipment Data			Emission Factors (lb/mi)							Emissions lbs/day						
		Qty	Miles/Day	Days	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CO	NOx	VOC	SOx	PM10	PM2.5	CO2
Worker commutes	Passenger Vehicles	10	50	26	0.0036	0.0003	0.0005	0.0000	0.0001	0.0001	1.1106	47.0136	4.0275	5.9173	0.1416	1.2686	0.8404	14560.0555
mob/demob	Heavy Duty Diesel Tru	2	50	10	0.0044	0.0097	0.0008	0.0000	0.0005	0.0004	4.1955	4.4444	9.7437	0.8401	0.0393	0.5077	0.3832	4195.5294
											Total (lb/day)	51.4580	13.7712	6.7574	0.1809	1.7762	1.2236	18755.5849
											Annual Total (ton)	0.03	0.01	0.00	0.00	0.00	0.00	9.38
											Total on-road and off-road	1.76	9.37	0.53	0.01	0.12	0.11	636.65

* Dredge emission factors provided by Manson. Emission factors include ALL engines on dredge. Calculations based on actual fuel consumption
Because factors are based on fuel consumptions, changes in load factors are integrated in real time into the different phases of dredge operation (dredging, transiting, discharge)
No PM 2.5 factors provided. Used PM 2.5 = 0.9 x PM10 per recommendation from AQMD for offroad equipment

** support vessels emission factors come from Sacramento AQMD Harbor Craft emission factors calulator. Tug boat emission factors assume 2 propulsion engines.

*** land side equipment emission factors come from SCAQMD off-road emission factors for construciton year 2024.
No PM 2.5 factors provided. Used PM 2.5 = 0.9 x PM10 per recommendation from AQMD for offroad equipment

**** CO2 emission factor for dredge was not provided by dredge contractor. The CO2 emission factors used comes from
Sacramento AQMD Harbor Craft emission factors calulator. Dredge emission factors assume 2 propulsion engines.

Emission Estimates Using Surfside-Sunset Borrow Area for Fall 2024 or 2025

Off-Road Emissions

		Equipment Data			Emission Factors (lb/hr)							Emissions lbs/day						
		Qty	Hrs/Day	load Factor	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CO	NOx	VOC	SOx	PM10	PM2.5	CO2
Dredge (*)	Hopper Dredging	1	3	n/a	5.80	33.96	1.78	0.05	0.37		2177.7118	17.40	101.88	5.34	0.15	1.11	1.00	6533.14
	Hopper Transiting	1	18	n/a	3.67	23.72	1.25	0.03	0.23		1377.9659	66.06	426.96	22.50	0.54	4.14	3.73	24803.39
	Hopper Discharging	1	3	n/a	9.09	45.49	2.37	0.06	0.56		3413	27.27	136.47	7.11	0.18	1.68	1.51	10239.00
Support Vessels (**)	Tug Boat (Prop)	1	2	0.5	6.34	21.50	1.81	0.01	1.24	1.11	1521.12	6.34	21.5	1.81	0.014	1.24	1.105	1521.118
	Tug Boat (Aux)	1	2	0.5	0.49	0.93	0.13	0.00	0.079	0.07	69.500	0.491	0.93	0.128	0.001	0.079	0.071	69.5
	Crew (prop)	1	2	0.38	0.79	3.40	0.27	0.00	0.14	0.12	189.90	0.6004	2.584	0.2052	0.00152	0.1064	0.09424	144.324
	Crew (aux)	1	2	0.5	0.34	0.81	0.11	0.00	0.04	0.04	34.70	0.337	0.809	0.112	0	0.043	0.039	34.7
Off Road Equip (***)	Dozer	2	8	n/a	0.68	1.17	0.17	0.00	0.05		239.08	10.935421	18.71218	2.796515	0.039223	0.727982	0.655184	3825.265356
	Loader	1	4	n/a	0.43	0.31	0.06	0.00	0.01		108.61	1.7295157	1.252218	0.235166	0.004803	0.055192	0.049673	434.4452904
											Daily Total (lb/day)	131.16	711.10	40.24	0.93	9.18	8.25	47604.87
									Figure from 'dredge days' ta	26	Days Total (lb)	3439.0752	18644.82	1055.003	24.39872	240.7389	216.342	1248189.813
											Annual Total (ton)	1.7195376	9.322412	0.527501	0.012199	0.120369	0.108171	624.0949067
MOB/DEMOB FOR 2 TUG BOATS																		
	Tug Boat (Prop)	2	2	0.5	6.34	21.50	1.81	0.01	1.24	1.11	1521.12	12.68	43	3.62	0.028	2.48	2.21	3042.236
	Tug Boat (Aux)	2	2	0.5	0.49	0.93	0.13	0.00	0.079	0.07	69.500	0.982	1.86	0.256	0.002	0.158	0.142	139
											Daily Total (lb/day)	13.662	44.86	3.876	0.03	2.638	2.352	3181.236
										2	Days Total (lb)	27.324	89.72	7.752	0.06	5.276	4.704	6362.472
											Annual Total (ton)	0.013662	0.04486	0.003876	0.00003	0.002638	0.002352	3.181236

On Road Emissions

		Equipment Data			Emission Factors (lb/mi)							Emissions lbs/day						
		Qty	Miles/Day	Days	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CO	NOx	VOC	SOx	PM10	PM2.5	CO2
Worker commutes	Passenger Vehicles	10	50	26	0.0036	0.0003	0.0005	0.0000	0.0001	0.0001	1.1106	47.0136	4.0275	5.9173	0.1416	1.2686	0.8404	14560.0555
mob/demob	Heavy Duty Diesel Tru	2	50	10	0.0044	0.0097	0.0008	0.0000	0.0005	0.0004	4.1955	4.4444	9.7437	0.8401	0.0393	0.5077	0.3832	4195.5294
											Total (lb/day)	51.4580	13.7712	6.7574	0.1809	1.7762	1.2236	18755.5849
											Annual Total (ton)	0.03	0.01	0.00	0.00	0.00	0.00	9.38
											Total on-road and off-road	1.76	9.37	0.53	0.01	0.12	0.11	636.65

* Dredge emission factors provided by Manson. Emission factors include ALL engines on dredge. Calculations based on actual fuel consumption
Because factors are based on fuel consumptions, changes in load factors are integrated in real time into the different phases of dredge operation (dredging, transiting, discharge)
No PM 2.5 factors provided. Used PM 2.5 = 0.9 x PM10 per recommendation from AQMD for offroad equipment

** support vessels emission factors come from Sacramento AQMD Harbor Craft emission factors calulator. Tug boat emission factors assume 2 propulsion engines.

*** land side equipment emission factors come from SCAQMD off-road emission factors for construciton year 2024.
No PM 2.5 factors provided. Used PM 2.5 = 0.9 x PM10 per recommendation from AQMD for offroad equipment

**** CO2 emission factor for dredge was not provided by dredge contractor. The CO2 emission factors used comes from
Sacramento AQMD Harbor Craft emission factors calulator. Dredge emission factors assume 2 propulsion engines.

Comparison of General Conformity Rates

Unmitigated Emissions

		General Conformity		Estimated Emission		
		Applicability Rates	Jan 2024	April 2024	Fall 2024	Total 2024
Pollutant	NAAQS Attainment Designation	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Ozone (VOC as precursor)	Nonattainment (Extreme)	10	0.05	0.53	0.53	1.12
Ozone (NOx as precursor)	Nonattainment (Extreme)	10	0.79	9.37	9.37	19.54
Carbon Monoxide (CO)	Attainment (Maintenance)	100	0.19	1.76	1.76	3.71
Nitrogen Dioxide (NO2)	Attainment (Maintenance)	100	0.79	9.37	9.37	19.54
Particulate Matter (PM10)	Attainment (Maintenance)	100	0.02	0.12	0.12	0.26
Particulate Matter (PM2.5)	Nonattainment (Serious)	70	0.01	0.11	0.11	0.24
Lead (Pb)	Attainment	N/A				
Sulfur Dioxide (SO2)	Attainment	N/A				

Mitigated Emissions (Tier 4 Engines for Landside Off-Road Equipment)

		General Conformity		Estimated Emission		
		Applicability Rates	Jan 2024	April 2024	45627	Total 2024
Pollutant	NAAQS Attainment Designation	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Ozone (VOC as precursor)	Nonattainment (Extreme)	10	0.05	0.53	0.50	1.09
Ozone (NOx as precursor)	Nonattainment (Extreme)	10	0.79	9.37	9.13	19.30
Carbon Monoxide (CO)	Attainment (Maintenance)	100	0.19	1.76	1.73	3.68
Nitrogen Dioxide (NO2)	Attainment (Maintenance)	100	0.79	9.37	9.13	19.30
Particulate Matter (PM10)	Attainment (Maintenance)	100	0.02	0.12	0.11	0.25
Particulate Matter (PM2.5)	Nonattainment (Serious)	70	0.01	0.11	0.10	0.23
Lead (Pb)	Attainment	N/A				
Sulfur Dioxide (SO2)	Attainment	N/A				

GHGs and Social Costs

ALT 1

		metric	social	total
Emissions Year	tons/year	tons/year	cost	social costs
2024	637	573	$55	$31,514

ALT 2

		metric	social	total
Emissions Year	tons/year	tons/year	cost	social costs
2025	637	573	$56	$32,087