ENGINEERING EVALUATION
Eagle Rock Aggregates Inc.
Outer Harbor Terminal within the Port of Oakland, Oakland
Application No. 30884
Facility ID 24848

1.0 BACKGROUND

Eagle Rock Aggregates, Inc. (ERA) proposes to construct and operate the ERA Oakland Terminal, a marine terminal at the Port of Oakland (Port) that would import, store, and distribute bulk construction aggregates (i.e., sand and gravel). The proposed project is located at the Port's Outer Harbor Terminal within the Oakland Outer Harbor along the San Francisco Bay. This location is within an Overburdened Community (OBC) as defined in Air District Regulation 2-1-243.

The plant would utilize Berth 22 for vessel and barge operations and approximately 18 acres of Berth 20, 21, and 22 backlands (land directly adjacent to a vessel berth) for stockpiling and distribution of construction aggregates. The project site is approximately 18 acres in size and is generally bounded by the Outer Harbor to the north and west, 14th Street and the Outer Harbor Terminal to the south, and Maritime Street to the east.

Once operational, ERA will transport sand and aggregate from British Columbia, Canada via ocean-going vessel (OGV). Material will be offloaded from OGVs to the Oakland Terminal via a self-discharging mechanism in each vessel and series of onshore conveyors. ERA expects up to 48 OGV calls per year and a total material throughput of up to 2,500,000 tons per year (TPY). Material offloaded onto the Oakland Terminal will be distributed to destination concrete ready-mix plants via trucks and barges. Material will be loaded into trucks via front-end loader and onto barges via a conveyor system.

Under the California Environmental Quality Act (CEQA), the Port is the Lead Agency, and the Bay Area Air District (Air District) is a responsible agency. A Final Supplemental Environmental Impact Report (FSEIR)[1] was prepared for the project and a Notice of Determination (NOD) was filed by the Port with the County of Alameda in February 2022 under State Clearinghouse Number (SCH#) 2001082058. The Port also adopted an Addendum to the FSEIR on August 8, 2025 to address two changes to the project.

Per Sections 2-1-301 and 2-1-302 of Air District Regulation 2, Rule 1, ERA's proposed operations of offloading, storage, transfer, and loading of sand/aggregate material are subject to permitting requirements. Therefore, ERA is applying for Authorities to Construct and Permits to Operate for the following sources of air pollution:

- **S-1 Receiving Hopper**
- **S-2 Ship Unloading & Stacking Conveyor System**
- **S-3 Sand & Aggregate Stockpiles (3 stockpiles & paved road dust)**
- **S-4 Barge Reclaim Hoppers**
- **S-5 Barge Loading Conveyor System**
- **S-6 Barge Loading**
- **S-7 Truck Loading**

[1] *FSEIR is available for review on the Port of Oakland's webpage for Environmental Stewardship Publications & Documents under "Eagle Rock Aggregates Oakland Terminal Project": https://www.portofoakland.com/business/bids-rfp-center/environmental-stewardship-publications-documents*

Emissions from all seven (7) of the above-mentioned sources (S-1 through S-7) will be controlled by the following abatement system, which will be assigned one abatement device ID:

A-1 Water Suppression System/Water Spray Mitigation

The following Figures show an overview of the proposed ERA facility, including the location at the Port and diagrams of the transfer points for each proposed source.

Figure 1-1: *Proposed location of ERA facility at Berth 22 of the Outer Harbor Terminal within the Port of Oakland.*

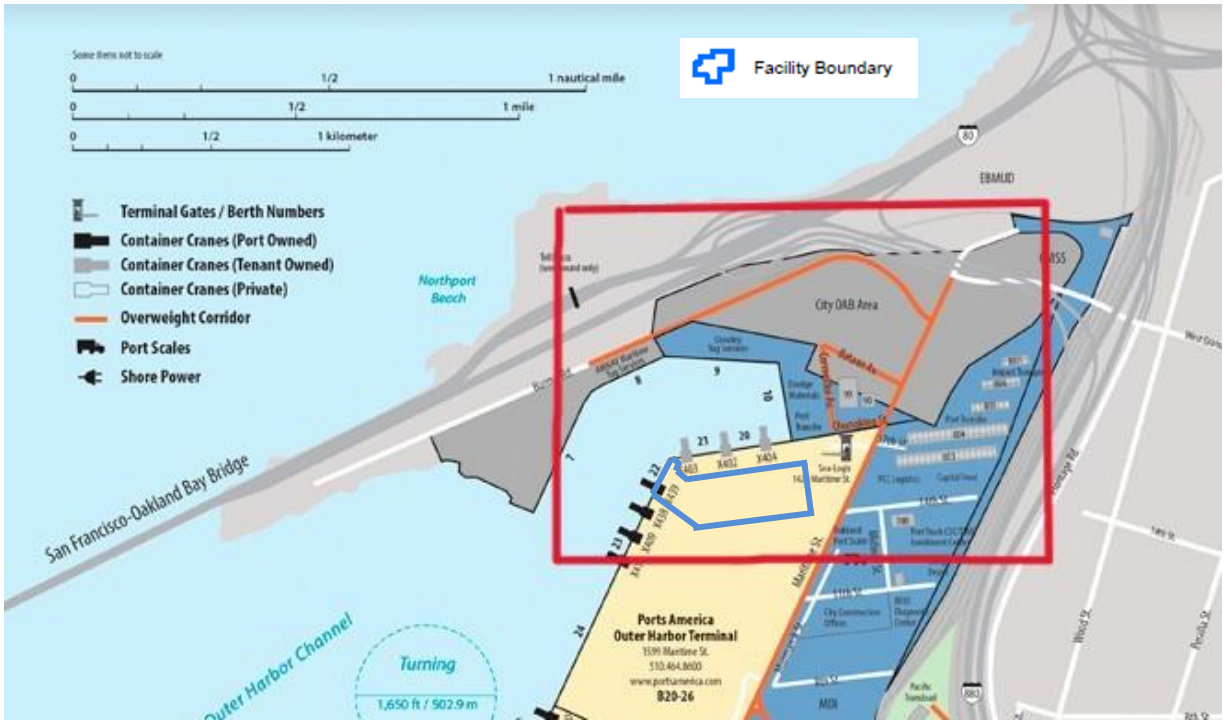


Figure 1-2: *Location and property boundary of the proposed ERA facility at Berth 22 of the Outer Harbor Terminal.*

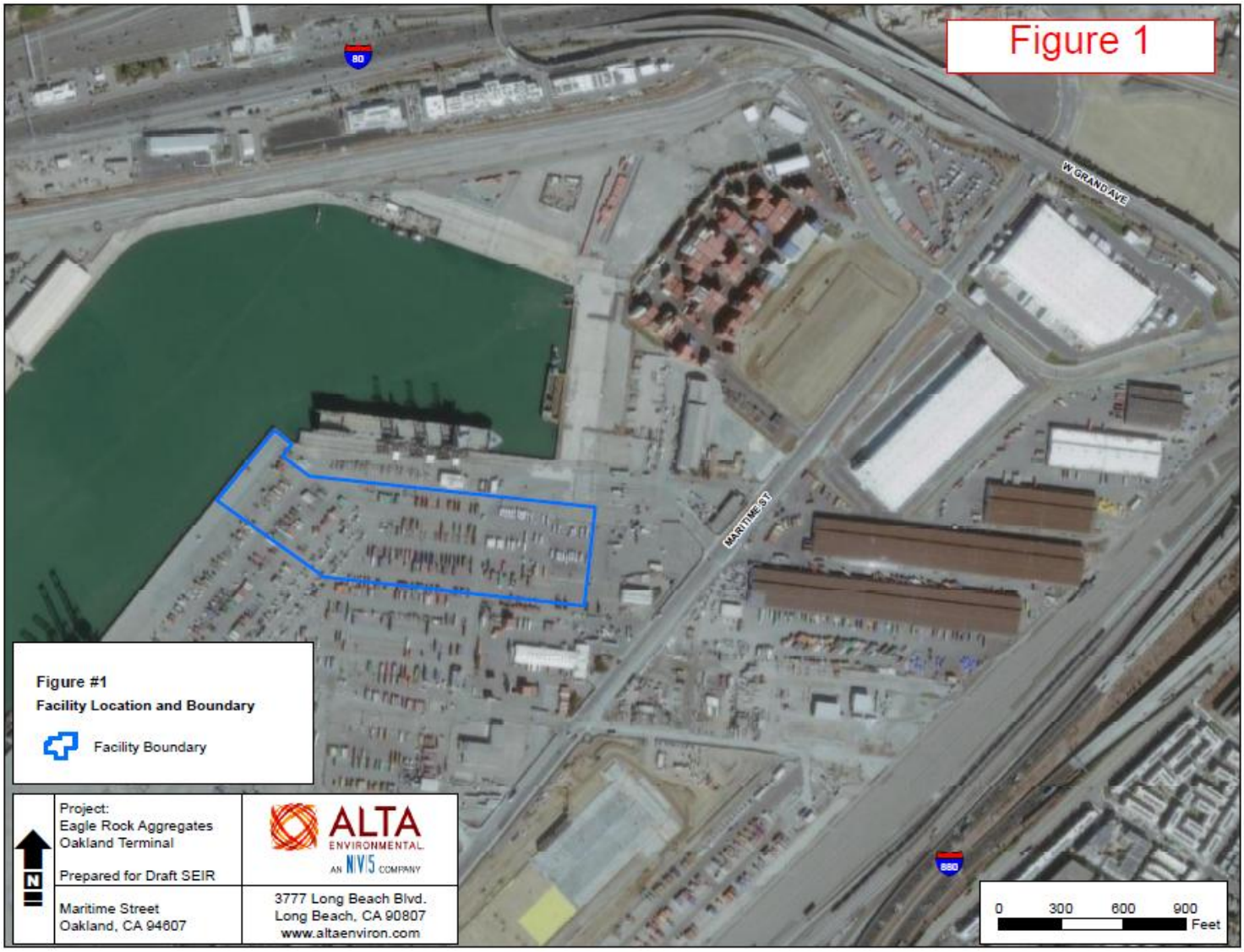


Figure 2-1: *Aerial view of site plan with identified material transfer points.*

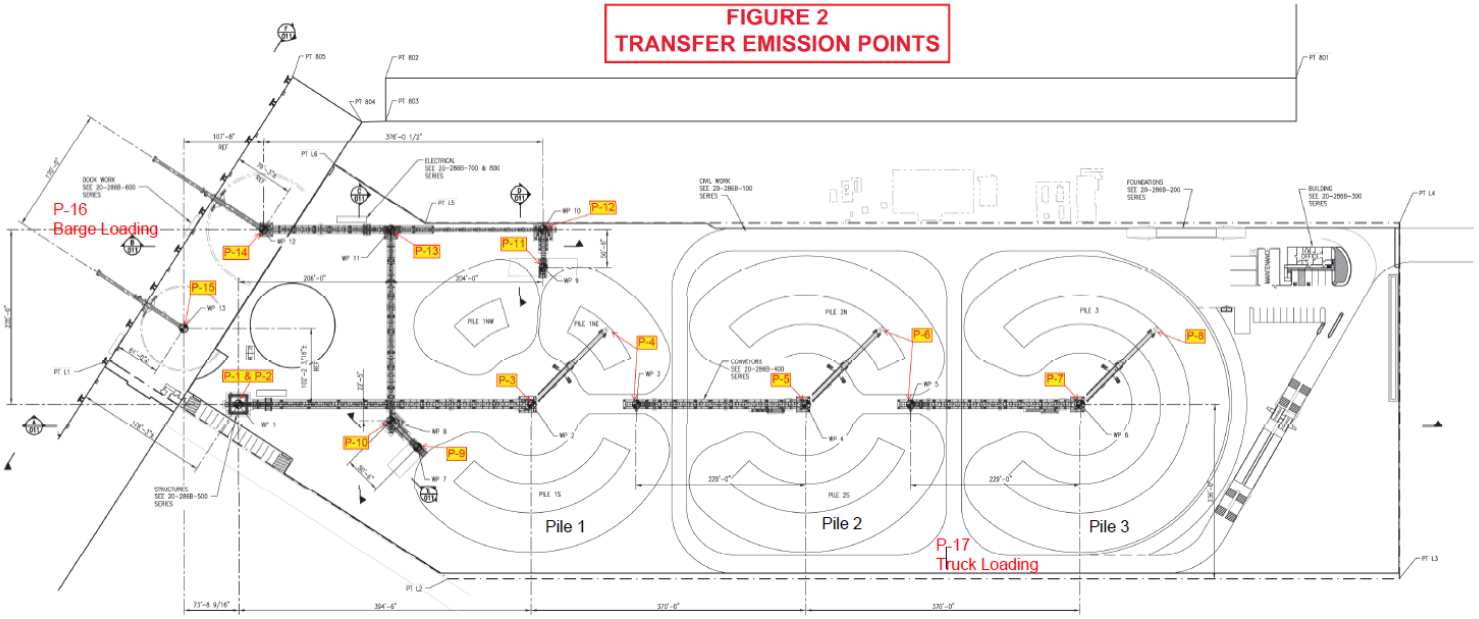


Figure 3-1: *Material transfer flow diagram for Ship Unloading, Conveyor System, and Stockpiles with identified transfer points.*

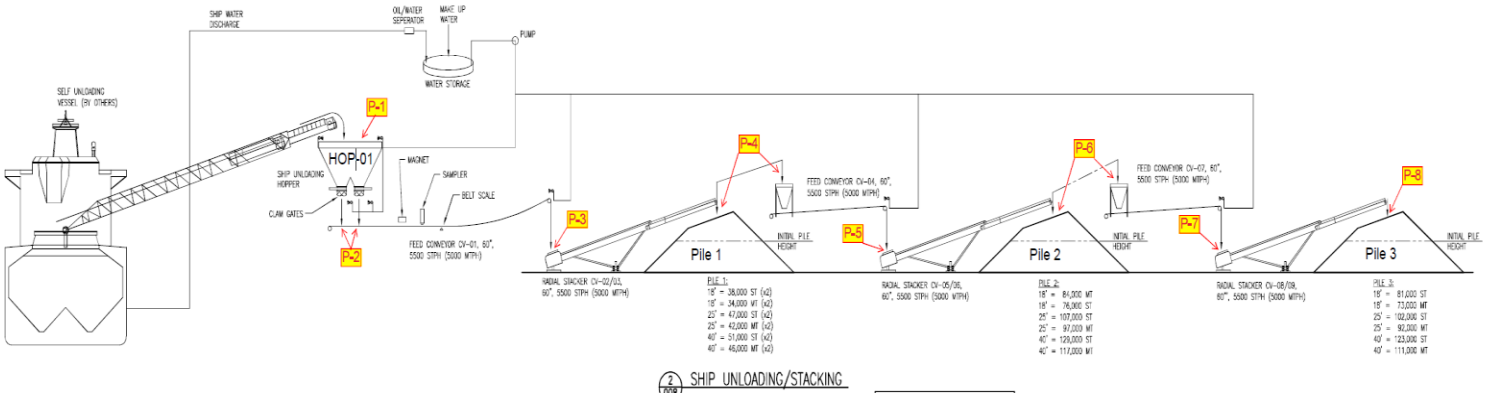


Figure 3-2: *Material transfer flow diagram for Barge Loading & Reclaim with identified transfer points.*

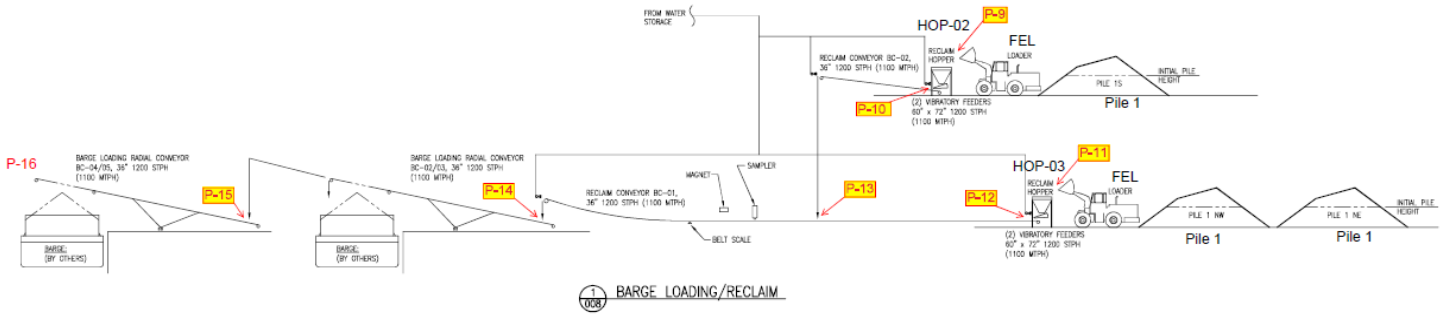
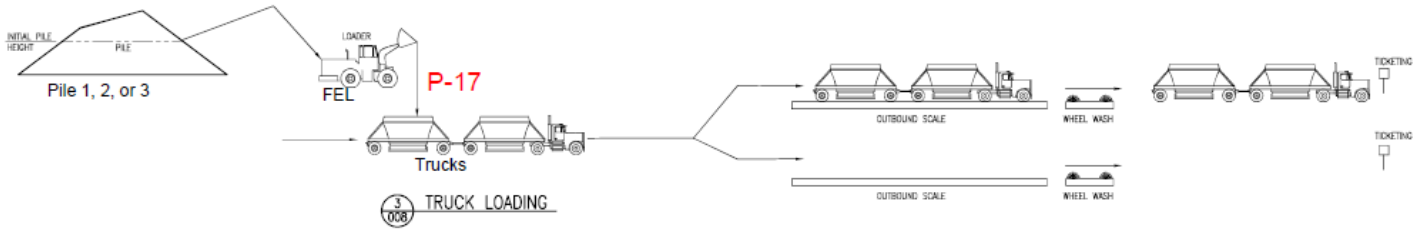


Figure 3-3: *Material transfer flow diagram for Truck Loading with identified transfer points.*



The process flow of material will begin with offloading material from ships to the Receiving Hopper (S-1) followed by the Ship Unloading & Stacking Conveyor System (S-2) that will distribute the sand/aggregate to the three (3) Sand/Aggregate Stockpiles (S-3). Sand/aggregate from the westernmost stockpile (Pile 1) will be transferred via front-end loaders to the Barge Reclaim Hoppers (S-4), from which the Barge Loading Conveyor System (S-5) will transfer material to Barge Loading (S-6) to be shipped off-site by sea. Front-end loaders will also transfer material from the two eastern stockpiles (Piles 2 & 3) to Truck Loading (S-7) to be shipped off-site by land. Off-road vehicle traffic on-site and the arrival and departure of customer trucks at the facility will generate additional emissions from road dust (included as part of S-3). Emissions from the proposed sources (excluding OGV emissions) will come from material transfer points, wind erosion, and road dust from vehicle traffic. Each of the fixed-location conveyor transfer points will be partially enclosed by a head chute, skirtboard, and dust curtains at material entry and exit points. Non-fixed transfer points will be open. The following table summarizes each identified source, the types and count of associated transfer points, and emission points as labeled in Figure 2 and Figure 3 above. The following acronyms/words are used to describe the applicable equipment:

HOP – *Hoppers*
CV – *Conveyors/Stackers used in ship unloading and stockpile stacking*
Pile – *Sand/Aggregate Stockpiles*
FEL – *Front-end Loaders*
BC – *Conveyors used for reclaim and/or barge loading*
Truck – *Trucks used to ship material off-site*

Table 1. Source Descriptions, Transfer/Emission Points for S-1 through S-7

Source ID	Source Description	# of Transfer Points	Transfer Point Type	Transfer Point Location(s)	Transfer Point ID (Fig 2/Fig 3)
S-1	Receiving Hopper	1	Open	Ship to HOP-01	P-1
S-2	Ship Unloading & Stacking Conveyor System	6	Chuted	HOP-01 to CV-01	P-2
			Chuted	CV-01 to CV-02/03	P-3
			Open	CV-02/03 to CV-04	P-4
			Chuted	CV-04 to CV-05/06	P-5
			Open	CV-05/06 to CV-07	P-6
			Chuted	CV-07 to CV-08/09	P-7
S-3	Sand/Aggregate Stockpiles	1*	Open	CV-02/03 to Pile 1; or CV-05/06 to Pile 2; or CV-08/09 to Pile 3	P-8
		Fugitive emissions from wind erosion at piles 1, 2, and 3			
		Fugitive dust emissions from on-site vehicle traffic			
S-4	Barge Reclaim Hoppers	1**	Open	FEL to HOP-02; or FEL to HOP-03	P-9; or P-11
S-5	Barge Loading Conveyor System	4**	Chuted	HOP-02 to BC-02; or HOP-03 to BC-01	P-10; or P-12
			Chuted	BC-02 to BC-01	P-13
			Chuted	BC-01 to BC-02/03	P-14
			Open	BC-02/03 to BC-04/05	P-15
S-6	Barge Loading	1	Open	BC-02/03 to Barge; or BC-04/05 to Barge	P-16
S-7	Truck Loading	1***	Open	FEL to Truck	P-17

Table 1 Notes:

* Only one transfer point into the stockpiles (S-3) can operate at once, so P-8 could be located at any one of the three stockpiles. Additional emissions from S-3 will come from wind erosion of the stockpiles and road dust from on-site vehicles.

** Under typical operating conditions, the two Barge Reclaim Hoppers (S-4) will be used one at a time and subsequently, the Barge Loading Conveyor System's (S-5) initial transfer points (P-10 and P-12) will be used one at a time. Therefore, the associated pairs of transfer points (P-9 or P-11; and P-10 or P-12) will each be considered a single transfer point for emission calculation purposes. ERA acknowledges that it is physically possible for both Barge Reclaim Hoppers to be used simultaneously, although this is an unlikely scenario because each hopper will be used to process separate materials. As shown in Figure 3-2, the Barge Loading Conveyor System downstream of P-10 and P-12 converges to one conveyor with a maximum material throughput rate equal to that of each of the upstream Barge Reclaim Hoppers and their respective outlet conveyors. In the unlikely event that both Barge Reclaim Hoppers are simultaneously in use, this design creates a bottleneck in the process flow that would constrict the sum of material throughput rates through both Barge Reclaim Hoppers to no more than the maximum throughput allowed for S-4 or S-5. Because material throughput rate is a direct factor of pollutant emission rates (discussed in more detail in the Emission Calculations section of this evaluation), simultaneous use of the Barge Reclaim Hoppers would not result in an increase of emission rates for any pollutant that are higher than the maximum emission rates from using one Barge Reclaim Hopper at a time.

*** Emissions from Truck Loading (S-7) may occur at various points that may not always be consistent. However, the sum of the material processed through all points will be no higher than the maximally proposed throughput for S-7. These various "partial" transfer points are encompassed into effectively one "transfer point" that will account for all transfer point emissions from S-7.

As shown in the above figures and in Table 1, the process flow of material will begin with offloading material from ships to the Receiving Hopper (S-1) followed by the Ship Unloading & Stacking Conveyor System (S-2) that will distribute the sand/aggregate to the three (3) Sand/Aggregate Stockpiles (S-3). Sand/aggregate from the westernmost stockpile (Pile 1) will be transferred via FEL to the Barge Reclaim Hoppers (S-4), from

which the Barge Loading Conveyor System (S-5) will transfer material to Barge Loading (S-6) to be shipped off-site by sea. Front-end loaders will also transfer material from the two eastern stockpiles (Piles 2 & 3) to Truck Loading (S-7) to be shipped off-site by land.

This evaluation will also consider emissions from cargo carriers for determination of the applicability of the offset requirements of Air District Regulations 2-2-302 and 2-2-303. As required in Air District Regulation 2-2-610, "a facility's potential to emit and cumulative increase shall be calculated including emissions from cargo carriers (other than motor vehicles) associated with the sources at the facility."

2.0 EMISSIONS CALCULATIONS

The criteria pollutants emitted from all the proposed sources (S-1 through S-7) include Particulate Matter (PM) with diameters ≤ 10 µm (PM_{10}) and diameters ≤ 2.5 µm ($PM_{2.5}$). Additionally, the sand/aggregate processed at this facility contains quartzite, which is a mineral that is predominantly comprised of Crystalline Silica. Respirable Crystalline Silica (CS) is a Toxic Air Contaminant (TAC).

There are four (4) categories of emissions scenarios from this proposed project that will each be evaluated using their own respective methodologies. These categories include emissions from (1) material transfer points, (2) stockpile emissions, (3) road dust, and (4) cargo carriers. All four emissions scenarios will be discussed in the following subsections.

2.1 Pollutant Emissions from On-Site Sources (excluding Cargo Carriers):

Emissions from the proposed sources will occur at the transfer points, stockpiles, and from road dust. Emissions from cargo carriers will be discussed in a later subsection. For reference, below is a summary of the emissions scenario that applies to each proposed source.

Table 2. Source Emissions Scenarios (S-1 through S-7)

Source ID	Emissions Scenario (Section)
S-1	Transfer Points (2.1.1)
S-2	Transfer Points (2.1.1)
S-3	Transfer Points (2.1.1) Stockpiles (2.1.2) Road Dust (2.1.3)
S-4	Transfer Points (2.1.1)
S-5	Transfer Points (2.1.1)
S-6	Transfer Points (2.1.1)
S-7	Transfer Points (2.1.1)

2.1.1 Emissions from Transfer Points:

All of the proposed sources (S-1 through S-7) will have material transfer points emitting PM and CS. Although it should be noted that transfer point emissions only make up part of the emissions from S-3, Stockpiles (stockpile drop point). Emissions from transfer points are calculated based on material-specific and design-specific emission factors as well as the proposed throughputs of material processed at each transfer point.

The facility has proposed a facility-wide total annual throughput of 2,500,000 tons/year (TPY) of sand/aggregate. However, this amount will not be processed through every transfer point because some of the material will be shipped off-site by barge and some by truck. Therefore, the facility has proposed a maximum annual throughput for barge and truck loading of 1,500,000 TPY each to allow for flexibility, although the total annual throughput limit of 2,500,000 TPY will not be exceeded. The annual material throughput limit of 1,500,000 TPY for both barge loading and truck loading will be used to conservatively calculate annual emission rates from the associated transfer points, but this is an overestimate because the sum of material throughput to barge loading and truck loading cannot exceed the overall limit of 2,500,000 TPY. Typical facility operation schedule will be 16 hours/day, 6 days/week and 52 weeks/year. However, operations on some days could extend to a maximum of 24 hours. The facility has also identified the maximum hourly material throughputs for each type of transfer operation. Maximum daily throughput is calculated by multiplying the maximum hourly throughput by 24 hours. Table 3 summarizes the proposed annual, daily, and hourly throughputs for each transfer operation and the sources that each operation applies to.

Table 3. Proposed Material Throughputs by Transfer Operation

Transfer Operation	Applicable Sources	Throughputs of Sand/Aggregate		
		Max Annual (ton/yr)	Max Daily[1] (ton/day)	Max Hourly (ton/hr)
Ship Unloading (Ship to Shore)	S-1, S-2, S-3	2,500,000	132,000	5,500
Barge Loading (Shore to Barge)	S-4, S-5, S-6	1,500,000	48,000	2,000
Truck Loading (Shore to Trucks)	S-7	1,500,000	48,000	2,000

Notes:
1. Max daily (ton/day) = Max Hourly (ton/hr) * 24 (hrs/day)

As shown in Table 3, the Ship to Shore throughput will be used to calculate emissions from S-1, S-2, and part of S-3, Shore to Barge throughput for S-4, S-5, and S-6, and Shore to Trucks throughput for S-7. The count and type of transfer points for each of these sources is summarized in Table 1. To conservatively calculate the maximum emissions from transfer points, the following calculations assume that all material transferred from Shore to Barge is processed through Barge Reclaim Hopper HOP-02 and loaded to barges via Barge Loading Conveyor BC-04/05. This process flow route includes the S-5 transfer points identified as P-13 and P-15, of which one or both would be bypassed when material is processed through Barge Reclaim Hopper HOP-03 and/or loaded to barges via Barge Loading Conveyor BC-02/03 (see Figure 3-2 and Table 1 for reference).

The emission factor (EF) used to calculate PM_{10}, $PM_{2.5}$, and CS from the "Open" transfer points stems from the Uncontrolled PM_{10} emission factor for Aggregate Transfer operations (0.0033 lbs/ton), which is from Table 11.12-2 of the U.S. Environmental Protection Agency (EPA) AP-42, Chapter 11.12 for Concrete Batching. Per the Air District Permit Handbook, Chapter 11.5 for Concrete Batch Plants, a PM_{10} abatement efficiency of 70% is used for operations that use water to suppress dust. Although this facility would not be a concrete batching plant, the emission factor and control efficiency from concrete batching reference materials were chosen because sand/aggregate transfer points at concrete batching plants are comparable to the "Open" transfer points in this proposed operation. Although Table 11.12-2 also has an emission factor for Sand Transfer and ERA will also process sand at the site, the emissions from the open transfer points will be calculated assuming 100% of material throughput is aggregate (i.e. gravel). This is a conservative assumption for the following reasons:

- Aggregate Transfer EF is more than 3.3 times higher than the Sand Transfer EF;
- The moisture content used to derive the listed Sand Transfer EF is less than the lower end of ERA's target moisture content range for sand; higher moisture content is expected to result in less PM emissions);
- Aggregate and Sand Transfer EFs in Table 11.12-2 are derived using an average wind speed of 10 mph, which is higher than the average wind speed for the area[2].

Considering the aforementioned points, actual PM emissions from open transfer points are expected to be lower than what will be presented in and used for this evaluation.

The emission factors (EF) used to calculate PM_{10}, $PM_{2.5}$, and CS from the "Chuted" transfer points are the Controlled $PM_{10}/PM_{2.5}$ emission factors for Conveyor Transfer Point operations (0.000046 & 0.000013 lbs/ton, respectively), which are from Table 11.19.2-2 of the EPA AP-42 Chapter 11.19.2 for Crushed Stone & Pulverized Mineral Processing. These emission factors already account for wet suppression controls and were chosen because the "chuted" design of the conveyor transfer points is similar to those found at stone/rock processing plants. The chute structure over these transfer points appears and functions similar to a partial enclosure that can reduce airborne particulate during sand and aggregate transfer. According to the reference notes for Table 11.19.2-2, the material moisture content of the study group used to derive the Controlled Conveyor Transfer Point EFs ranged from 0.55% to 2.88%, which covers ERA's target range for gravel (1% to 2%) and is significantly lower than their target range for sand (5% to 8%). Although moisture content is not the only process feature to affect emissions, higher moisture content of processed material reduces the potential for dust to become airborne and be emitted as PM. Therefore, actual emissions from the "Chuted" transfer points when processing sand would likely be less than what is presented here.

The methods for calculating PM_{10} emissions from these sources are summarized below. Below are examples of the formulas used to calculate PM_{10} emissions from each transfer point.

Equation 2.1-A:

$$\boldsymbol{Open\ Transfer\ Points\ Annual\ Abated\ PM_{10}}\ \left(\frac{\boldsymbol{tons}}{\boldsymbol{year}}\right) =$$

$$Unabated\ PM_{10}\ EF\ \left(\frac{0.0033\ lbs}{ton}\right) * (1 - 70\%) * (\#of\ Open\ Transfer\ Pts) *\ Annual\ Throughput\ \left(\frac{tons}{year}\right)$$

Equation 2.1-B:

$$\boldsymbol{Chuted\ Transfer\ Points\ Annual\ Abated\ PM_{10}}\ \left(\frac{\boldsymbol{tons}}{\boldsymbol{year}}\right) =$$

$$Unabated\ PM_{10}\ EF\ \left(\frac{0.000046\ lbs}{ton}\right) * (\#of\ Chuted\ Transfer\ Pts) *\ Annual\ Throughput\ \left(\frac{tons}{year}\right)$$

Table 4 below summarizes the PM_{10} emission rates from transfer point sources.

[2] *According to Climate & Average Weather at Oakland International Airport (from weatherspark.com) and Annual Weather Data for the City of Oakland (from city-facts.com, which sources weather data from NOAA – the National Oceanic & Atmospheric Administration), the average wind speed for the area is 8.2-8.3 mph. Although a simple average wind speed value specifically for the Port of Oakland Outer Harbor is not readily available, NOAA has a weather station in the Outer Harbor at Berth 34, just 1 mile southwest of the proposed ERA site. According to data from this weather station, 78% of all wind speed records from years 2013-2024 are less than or equal to 4.4 m/s (9.8 mph). Link to NOAA weather station info: https://www.ndbc.noaa.gov/station_page.php?station=okxc1*

Table 4. PM_{10} Emission Rates from Transfer Points (S-1 through S-7)

Source ID & Description	*PM_{10}*					
	# of Open Transfer Points	# of Chuted Transfer Points	Maximum Hourly Emissions (lb/hour)	Maximum Daily Emissions (lb/day)	Maximum Yearly Emissions (lb/year)	Maximum Yearly Emissions (ton/year)
S-1, Receiving Hopper	1	0	5.45	130.7	2,475	1.238
S-2, Ship Unloading & Stacking Conveyor System	2	4	11.9	285.6	5,410	2.705
S-3, Stockpiles (drop point only)	1	0	5.45	130.7	2,475	1.238
S-4, Barge Reclaim Hoppers	1	0	1.98	47.5	1,485	0.743
S-5, Barge Loading Conveyor System	1	3	2.26	54.1	1,692	0.846
S-6, Barge Loading	1	0	1.98	47.5	1,485	0.743
S-7, Truck Loading	1	0	1.98	47.5	1,485	0.743
Total PM_{10} (from transfer points)			**31.0**	**744**	**16,507**	**8.254**

The methodology for calculating emissions of $PM_{2.5}$ from the open transfer points is taken from the Air District Permit Handbook Chapter 11.5 for Concrete Batching, which states that the unabated $PM_{2.5}$ emission factor (in lbs/ton) can be estimated at 15% of the unabated PM_{10} emission factor. There is no data for abated $PM_{2.5}$ emission factors, so no abatement is assumed for $PM_{2.5}$ emissions from the transfer operations. Similar to the PM_{10} emission calculation method, an example equation for annual $PM_{2.5}$ emission calculations is below. Because $PM_{2.5}$ emissions from open transfer points are calculated from the PM_{10} emission factor, the same conservative assumptions used for the PM_{10} emissions also apply to emissions of $PM_{2.5}$.

Equation 2.1-C:

$$\boldsymbol{Annual\ PM_{2.5}}\left(\frac{\boldsymbol{tons}}{\boldsymbol{year}}\right) =$$

$$Unabated\ PM_{10}\ EF\ \left(\frac{0.0033\ lbs}{ton}\right) * \left(15\%\frac{PM2.5}{PM10}\right) * (\#\ of\ Transfer\ Pts) *\ Annual\ Throughput\ \left(\frac{tons}{year}\right)$$

For the chuted transfer points, the previously mentioned $PM_{2.5}$ emission factor from AP-42 11.19.2 is used with the same formula shown in Equation 2.1-B.

Table 5 below summarizes the $PM_{2.5}$ emission rates from the sources that emit from transfer points.

Table 5. $PM_{2.5}$ Emission Rates from Transfer Points (S-1 through S-7)

Source ID & Description	*$PM_{2.5}$*					
	# of Open Transfer Points	# of Chuted Transfer Points	Maximum Hourly Emissions (lb/hour)	Maximum Daily Emissions (lb/day)	Maximum Yearly Emissions (lb/year)	Maximum Yearly Emissions (ton/year)
S-1, Receiving Hopper	1	0	2.72	65.3	1,238	0.619
S-2, Ship Unloading & Stacking Conveyor System	2	4	5.73	137.5	2,605	1.303
S-3, Stockpiles (drop point only)	1	0	2.72	65.3	1,238	0.619
S-4, Barge Reclaim Hoppers	1	0	0.99	23.8	743	0.371
S-5, Barge Loading Conveyor System	1	3	1.07	25.6	801	0.401
S-6, Barge Loading	1	0	0.99	23.8	743	0.371
S-7, Truck Loading	1	0	0.99	23.8	743	0.371
Total $PM_{2.5}$ (from transfer points)			**15.2**	**365**	**8,109**	**4.054**

Crystalline silica is a Toxic Air Contaminant (TAC) that is present in the materials that would be processed at this site. Respirable sized particles are produced when crystalline silica is processed. The emission factor used for calculating emissions of respirable crystalline silica (CS) from the transfer points is derived from composition data of the specifically proposed sand/aggregate material as well as data from a technical report, published by Air Control Techniques, P.C., regarding CS and PM emission factors for aggregate producing sources (ACT Report)[3]. This report summarizes the weight fraction relationships of PM_{10}, PM_4[4], crystalline silica (total), and crystalline silica (respirable). The latter being the substance of concern in these calculations.

The first step in deriving the respirable CS emission factor is to determine the mass fraction of respirable CS present in PM_{10} from sand/aggregate processing sources. The formula for this calculation is below, along with the description and basis of each input parameter.

Equation 2.1-D:

$$\boldsymbol{M_{CSR,10}} = M_{CST,SA} * M_{PM4,10} * m_{CSR4,CST}$$

Equation Symbol	Description	Value	Units	Basis
$M_{CST,\ SA}$	Mass fraction of total CS in material to be processed (Sand/Aggregate)	5.0%	*% by wt*	• *Maximum content of quartzite listed in the submitted safety data sheet of proposed sand/aggregate material at ERA.* • *Assumption that 100% of quartzite is comprised of crystalline silica.*
$M_{PM4,\ 10}$	Average mass fraction of respirable PM (PM_4) in PM_{10}	48.2%	*% by wt*	*ACT Report*
$m_{CSR4,\ CST}$	Average content of Respirable CS in PM_4, per CS content in material	43.3%	*% by wt*	*ACT Report*
$M_{CSR,\ 10}$	**Mass fraction of respirable CS in PM_{10}**	**1.04%**	***% by wt***	*Calculated (Eq 2.1-C)*

[3] *Air Control Techniques, P.C., July 31, 2007, PM_4 Crystalline Silica and PM_{10} Particulate Matter Emission Factors for Aggregate Producing Sources. Link: https://www2.co.fresno.ca.us/4510/4360/environmental/KingsRiverSandGravel/Appendix_D-2007CRRNOS_Study.pdf*

[4] *Respirable particles have a maximum diameter of 4 µm, per the California Office of Environmental Health Hazard Assessment (OEHHA).*

The abated emission factor for respirable crystalline silica is calculated by multiplying the respirable CS content in PM_{10} by the PM_{10} emission factors shown in Equations 2.1-A and 2.1-B. An example for open transfer points is below.

Equation 2.1-E:

$$\textbf{\textit{Abated EF for Respirable CS}}\left(\frac{1.033*10^{-5}\ lbs}{ton}\right) =$$
$$M_{CSR,10}\,(1.04\%) * \textit{Unabated } PM_{10}\ EF\ \left(\frac{0.0033\ lbs}{ton}\right) * (1 - 70\%)$$

Respirable CS emission rates from transfer points are calculated by multiplying the abated respirable CS emission factor by the throughput (in tons) of sand/aggregate per the associated unit of time. Table 6 below summarizes the respirable CS emission rates from the sources that emit from transfer points. Since the CS emission factor is derived from the PM_{10} emission factor, the same conservative assumptions discussed earlier in this section apply to CS emissions.

Table 6. Respirable CS Emission Rates from Transfer Points (S-1 through S-7)

Source ID & Description	*Crystalline Silica (respirable)*					
	# of Open Transfer Points	**# of Chuted Transfer Points**	**Maximum Hourly Emissions (lb/hour)**	**Maximum Daily Emissions (lb/day)**	**Maximum Yearly Emissions (lb/year)**	**Maximum Yearly Emissions (ton/year)**
S-1, Receiving Hopper	1	0	0.057	1.36	25.8	0.013
S-2, Ship Unloading & Stacking Conveyor System	2	4	0.12	2.98	56.5	0.028
S-3, Stockpiles (drop point only)	1	0	0.057	1.36	25.8	0.013
S-4, Barge Reclaim Hoppers	1	0	0.021	0.50	15.5	0.008
S-5, Barge Loading Conveyor System	1	3	0.024	0.57	17.7	0.009
S-6, Barge Loading	1	0	0.021	0.50	15.5	0.008
S-7, Truck Loading	1	0	0.021	0.50	15.5	0.008
Total CS (from transfer points)			**0.32**	**7.76**	**172.3**	**0.086**

2.1.2 Emissions from Stockpiles:

Emissions of PM_{10}, $PM_{2.5}$, and CS will also occur from wind erosion at the stockpiles (S-3, only). Table 8.19.1-1 of EPA AP-42, Fourth Edition, Chapter 8.19.1 has stockpile wind erosion emission factors for sand and gravel processing plants. An emission factor of **1.7 lbs PM_{10} / acre-day** can be used to calculate daily uncontrolled emissions of PM_{10} from wind erosion alone. "Acres" in this emission factor include the area of storage and the area among the piles. The hourly emission rates are based on all daily emissions occurring within 2 hours on any day (*lbs/day divided by 2 hours/day*). Annual emission rates assume all stockpiles will be subject to wind erosion for 365 days per year (*lbs/day * 365 days/year*). The following additional parameters and assumptions are used to calculate the emissions of PM_{10}, $PM_{2.5}$, and CS from stockpile wind erosion:

- The area used for the calculation is conservatively estimated to be the rectangular area encompassing all three stockpiles, with a length of 1,200 ft and width of 480 ft (576,000 ft^2; or 13.22 acres). For reference, when all three stockpiles are in use, the maximum total footprint area of the stockpiles alone would take up approximately 6 acres.
- 70% abatement factor from water spray applied to calculate the abated PM_{10} emission factor:
  *(Abated PM_{10} = 1.7 lbs PM_{10} / acre-day * (1 – 0.7)*

- 15% of PM_{10} emissions are assumed to be comprised of $PM_{2.5}$. Water spray abatement of $PM_{2.5}$ is considered in these calculations *(Abated $PM_{2.5}$ = Abated PM_{10} * 0.15)*.
- 1.04% of PM_{10} emissions are assumed to be comprised of respirable CS (See Equation 2.1-C). Water spray abatement of CS is considered in these calculations *(Abated CS = Abated PM_{10} * 0.0104)*.

Using the estimated area of 13.22 acres, the formula for calculating daily pollutant emission rates is as follows:

Equation 2.1-F:

$$\textbf{\textit{Daily Emission Rate}}\ (\textbf{\textit{lbs/day}}) = Abated\ Emission\ Factor\ \left(\frac{lbs}{acre * day}\right) * 13.22\ acres$$

Table 7 below shows the abated emission factors and abated emission rates for the applicable pollutants. Actual emissions from wind erosion are expected to be lower than what is presented below because the maximum area of the proposed site that could be subject to wind erosion will be less than 13.22 acres. Furthermore, ERA may not be always using all three stockpiles and the estimated emissions assume that all three stockpiles will be at maximum capacity for 365 days per year.

Table 7. Abated Emissions of PM_{10}, $PM_{2.5}$, and CS from Wind Erosion from Stockpiles (part of S-3)

Source ID & Description	Pollutant	Abated Emission Factor (lbs/acre-day)	Maximum Hourly Emissions (lbs/hour)	Maximum Daily Emissions (lbs/day)	Maximum Annual Emissions (lbs/year)	Maximum Annual Emissions (ton/year)
S-3, Stockpiles (wind erosion only) 13.22 acres	**PM_{10}**	0.510	3.37	6.74	2,461	1.230
	$PM_{2.5}$	0.0765	0.51	1.01	369.1	0.185
	CS	0.00532	0.0352	0.0704	25.68	0.013

2.1.3 Emissions from Road Dust:

Dust generated from on-site vehicle traffic on paved roads will contribute to fugitive emissions of PM_{10}, $PM_{2.5}$, and CS, which will be included in the emissions from S-3 only. The two types of on-site vehicles include front-end loaders and customer trucks. Front-end loaders will be used for material transfer to the barge loading operation or to load material into the customer trucks. The following equation for emissions from paved roads is provided in Chapter 13.2.1, Paved Roads of AP-42 (updated 1/2011) for vehicles traveling on paved surfaces:

Equation 2.1-G:

$$E = k(sL)^{0.91} \times W^{1.02} \times (1-P/4N)$$

The following table summarizes the parameters used to calculate the road dust emission factors by pollutant and vehicle type:

Table 8. Paved Road Dust Emission Factor Parameters

Parameters		Units	PM2.5	PM10	Basis
Particle Size Multiplier	k	*lbs/VMT*	0.00054	0.0022	*AP-42 Chapter 13.2.1, Paved Roads, Table 13.2.1-1*
Silt Loading Factor[1]	sL	*g/m²*	12	12	*AP-42, Chapter 13.2.1, Table 13.2.1-3*
Front-End Loader (FEL) Avg Weight	W_{FEL}	*tons*	61.0	61.0	*Applicant submitted data*
Customer Truck (CT) Avg Weight	W_{CT}	*tons*	17.5	17.5	*Applicant submitted data*
# of "wet days" during averaging period[2]	P	*days*	**64**	**64**	*Alameda County wet days, per Table 5 of 2021 Update to CARB Guidance[5] Misc. Process Methodology 7.9, Entrained Road Travel, Paved Road Dust*
Averaging Period	N	*days*	**365**	**365**	*Averaging period for annual*
Emission Factor (FEL)	E_{FEL}	*lbs/VMT*	0.328	1.337	*Calculated for front-end loader traveling on paved road*
Emission Factor (CT)	E_{HT}	*lbs/VMT*	0.092	0.374	*Calculated for customer truck traveling on paved road*

Notes:
1. Silt loading factor for Concrete Batching is used because no processing equipment (screens, crushers, etc.) is present at the facility.
2. A "wet day" is defined as a day with at least 0.01" of precipitation.

The emission calculation method for respirable crystalline silica (CS) from the haul roads is derived from the technical report published by Air Control Techniques, P.C., regarding CS and PM emission factors for aggregate producing sources (ACT Report)[6]. Approximately 2.7% of the PM emissions from haul roads are estimated to be CS.

Based on the applicant submitted data for the front loaders and trucks proposed operations, the following vehicle miles traveled (VMT) were estimated:

Table 9. On-Site Vehicle Route Information & VMT by Vehicle Type

Parameters	Front Loader (FEL)	Customer Truck (CT)
Route Length (miles – round trip)	0.10[a]	0.60
Max Daily Round Trips (trips/day)	375	375
Avg Operating Time (days/year)	365	365
Max Annual Round Trips (trips/year)	70,000	70,000
VMT/Day (miles/day)	38	225
VMT/Year (miles/year)	7,000	42,000

Notes:
[a] Round-trip distance for FEL includes up to 2 vehicles traveling 0.05 miles each.

Per the Air District Permit Handbook, Chapter 11.5 for Concrete Batch Plants, an abatement efficiency of 70% for PM_{10} and 40% for $PM_{2.5}$ is applied for operations that use water to suppress dust. The haul roads will be required by permit condition to be watered and swept to minimize dust. The following are the estimated emissions from the paved roads.

[5] *California Air Resources Board, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust, revised and updated March 2021. Link: https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-paved-road-dust*
[6] *Air Control Techniques, P.C., July 31, 2007, PM_4 Crystalline Silica and PM_{10} Particulate Matter Emission Factors for Aggregate Producing Sources. Link: https://www2.co.fresno.ca.us/4510/4360/environmental/KingsRiverSandGravel/Appendix_D-2007CRRNOS_Study.pdf*

Table 10. Emissions from Paved Roads (part of S-3)

Description	Pollutant	Maximum Hourly Emissions[1] (lbs/hr)	Maximum Daily Emissions (lbs/day)	Maximum Annual Emissions (lbs/year)	Maximum Annual Emissions (ton/year)
Road Dust from Paved Roads	**PM_{10}**	20.15	40.3	7,520	3.760
	$PM_{2.5}$	9.89	19.8	3,692	1.846
	CS	0.544	1.1	203.5	0.102

Notes:
1. Maximum hourly emission rate assumes emissions occur for a minimum of 2 hours per day.

2.1.4 Summary of Source Emissions of Criteria Pollutants:

The emission rates of PM_{10} and $PM_{2.5}$ from each proposed source, as summarized in Sections 2.1.1 through 2.1.3 above, are combined below in Table 11 to show each proposed source's emission rates of criteria pollutants.

Table 11. Criteria Pollutant Emissions Summary (S-1 through S-7)

Source ID & Description	PM_{10}			$PM_{2.5}$		
	Maximum Daily Emissions (lb/day)	Maximum Annual Emissions (lb/year)	Maximum Annual Emissions (ton/year)	Maximum Daily Emissions (lb/day)	Maximum Annual Emissions (lb/year)	Maximum Annual Emissions (ton/year)
S-1 Receiving Hopper	130.7	2,475	1.238	65.3	1,238	0.619
S-2 Ship Unloading & Stacking Conveyor System	285.6	5,410	2.705	137.5	2,605	1.303
S-3 Stockpiles	177.7	12,456	6.228	86.1	5,298	2.649
S-4 Barge Reclaim Hoppers	47.5	1,485	0.743	23.8	743	0.371
S-5 Barge Loading Conveyor System	54.1	1,692	0.846	25.6	801	0.401
S-6 Barge Loading	47.5	1,485	0.743	23.8	743	0.371
S-7 Truck Loading	47.5	1,485	0.743	23.8	743	0.371
Total (All Sources)	**790.7**	**26,488**	**13.244**	**385.9**	**12,169**	**6.085**

2.2 Pollutant Emissions from Cargo Carriers:

Ocean-going vessels (OGVs) and tugboats will be used as cargo carriers to transport materials to and from the facility. OGVs and tugboats are sources of nitrogen oxides (NOx), carbon monoxide (CO), precursor organic compounds (POC), sulfur dioxide (SO_2), and PM from diesel combustion. In accordance with

Regulation 2-2-610, emissions of cargo carriers shall be included in the analysis for the purpose of assessing the facility cumulative increase and offset requirements. Emissions from cargo carriers **shall not be included for the purpose of applying any other provisions of Regulation 2-2.**

Sand/aggregate to be processed at S-1 through S-7 are brought to ERA Oakland Terminal by OGV. ERA is expecting up to 48 deliveries per year. OGV emissions from main engines, auxiliary engines, and boilers are calculated from inbound transit and maneuvering, hoteling, and outbound maneuvering and transit. The inbound trips include transit from the outer edge of the Precautionary Zone (PZ) to the Bay Bridge, maneuvering from the Bay Bridge to the Outer Harbor, and hoteling at the terminal. While hoteling at the terminal, the OGV will unload sand/aggregate to the facility for as long as 24 hours per delivery. Outbound trips include maneuvering from the Outer Harbor to the Bay Bridge followed by transit to the outer edge of the PZ. Mitigation Measure ERA AQ-1 from the project FSEIR requires that a minimum of 25% of annual OGV deliveries to the ERA Oakland Terminal are done by OGVs with main engines meeting the United States Environmental Protection Agency (USEPA) Tier 2 or higher emissions standards; and that requirement is to increase incrementally to a minimum of 40% by year 12 of the lease. The remaining OGV deliveries may be made by vessels rated at Tier 1 or Tier 0. ERA provided engine & boiler specifications for Tier 0- and Tier 2-rated vessels that are representative of the OGVs that will deliver material to the facility. From this provided information, OGV emissions are calculated assuming that 12 of the maximum 48 OGV deliveries/year are made by the Tier 2-rated vessel, and the emissions from the remaining 36 OGV deliveries/year are calculated from the Tier 0 vessel with the highest NOx emissions. Vessel-specific data used for the calculations include engine/boiler power ratings, cruise speeds, and auxiliary engine load percentage for specific route segments. Additional sources used for the basis of the OGV emissions include the 2020 Port of Oakland Emissions Inventory[7] and the 2021 OGV Emissions Inventory from the California Air Resources Board (CARB)[8], with the former as the preferred data source due to its specificity to the Port that ERA will operate at. OGV emissions are presented in Appendix A of this evaluation.

Tugboats, referred to herein as "Assist Tugs", would be utilized to assist in maneuvering OGVs to and from the Bay Bridge and berth at the Outer Harbor. Two (2) Assist Tugs per OGV would be required for both the inbound and outbound trips, for a maximum total of 96 Assist Tug round-trips/year. ERA provided examples of representative Assist Tugs from AmNav Maritime Corporation (AmNav) and the emissions were calculated assuming all trips are made with the boat with the highest NOx emissions. One Assist Tug round-trip includes transit from AmNav base at Berth 9 to meet the OGV at the Bay Bridge, maneuvering the OGV to the Outer Harbor, returning to AmNav base, then coming back to the Outer Harbor to pick up the OGV, maneuvering the OGV back to the Bay Bridge and then returning to AmNav base. Engine specifications, input parameters, and methodologies used to calculate emissions are from the following sources (in order of preference): 2020 Port of Oakland Emissions Inventory, Appendix H of the 2021 CARB Commercial Harbor Craft (CHC) Emissions Inventory[9], and the 2007 CARB CHC Emissions Estimation Methodology[10]. Assist Tug emissions are presented in Appendix A of this evaluation.

The proposed operations of the ERA Oakland Terminal will include the loading of barges to ship out material. Additional tugboats, referred to herein as "Barge Tugs", would be utilized to tow the barges full of sand/aggregate to customers adjacent to the water in various parts of the Bay Area. The barges don't have any engines and therefore no emissions, but emissions from the Barge Tugs are evaluated. Barge Tug emissions are calculated using the provided information on the typical shipping routes, the number of trips per year for each route, and specifications of representative Barge Tugs. The typical shipping routes are

[7] *2020 Port of Oakland Emissions Inventory report: https://www.portofoakland.com/wp-content/uploads/bsk-pdf-manager/2024/05/Port-Oakland-2020-Emissions-Inventory-Final-Report.pdf*
[8] *2021 CARB OGV Emissions Inventory report: https://ww2.arb.ca.gov/sites/default/files/2022-06/CARB_2021_OGV_Documentation_ADA.pdf*
[9] *Appendix H, 2021 CARB CHC Emissions Inventory report: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf*
[10] *2007 CARB CHC Emissions Estimation Methodology document: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2007/chc07/appb.pdf*

round trips from the ERA Oakland Terminal at the Outer Harbor to Petaluma, San Francisco Pier 92, or Treasure Island and back to the ERA Oakland Terminal. Additional input parameters used for emission calculations are from the following sources (in order of preference): 2020 Port of Oakland Emissions Inventory, Appendix H of the 2021 CARB CHC Emissions Inventory, and the 2007 CARB CHC Emissions Estimation Methodology. Barge Tug emissions are also presented in Appendix A of this evaluation.

The emissions from cargo carriers are summarized below and detailed in Appendix A of this evaluation.

Table 12. Cargo Carrier Emissions

Cargo Carrier Type	Annual Emissions (tons/year)					
	POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$
Ocean-Going Vessels	2.621	4.640	1.643	54.398	0.725	0.668
Assist Tugs	0.392	2.554	0.003	3.451	0.143	0.137
Barge Tugs	0.293	1.913	0.002	2.590	0.120	0.115
TOTAL	**3.306**	**9.106**	**1.648**	**60.439**	**0.988**	**0.920**

To ensure that cargo carrier emissions do not exceed the rates noted above, the permit conditions will include limitations on the annual number of OGV deliveries, the Tier ratings of the OGV main engines, and the number of outgoing barge shipments to the various customer destinations.

Regarding the OGV emissions, a condition of the Lawsuit Settlement Agreement[11] concerning this project states that the Port "shall use its best efforts to make shore power available to all [OGVs] calling at the Project (Berths 20-22) by the end of calendar year 2029 at the latest, with the goal of having shore power available in the calendar year 2027." Additionally, Eagle Rock must begin using at least one (1) OGV equipped to use shore power as soon as feasible after shore power is available, with the ultimate goal of at least 50% of aggregate delivered to the site by OGVs capable of using shore power. OGVs connected to shore power would not need to use their diesel-fueled auxiliary engines during hoteling and discharging at berth, which would in turn reduce emissions during those segments of each delivery. The proportion of total OGV emissions from the auxiliary engines during hoteling/discharging vary by pollutant but make up a range of approximately 40-50% of total OGV emissions. For the highest emitting pollutant (NOx), OGV auxiliary engines during hoteling/discharging emit approximately 50% of total OGV NOx emissions, and approximately 45% of total cargo carrier NOx emissions. Therefore, the implementation of shore power at the site will reduce emissions from the levels shown in Table 12 in the long-term. However, because shore power may not be available at the commencement of site operations, the emissions reduction is not considered when determining the facility's cumulative increase and the amount of offsets necessary to satisfy the requirements of Air District Regulation 2, Rule 2.

3.0 CUMULATIVE INCREASE

The following table summarizes the facility's cumulative increase. In addition to the PM10/2.5 emissions summarized in Table 11, the cumulative increase includes emissions from the cargo carriers associated with the sources at the facility (see Table 12), as required by Air District Regulation 2-2-610. For reference, the facility's cumulative increase is equal to the facility's potential-to-emit (PTE) for all pollutants.

[11] *Lawsuit Settlement Agreement made among the West Oakland Environmental Indicators Project, the People of the State of California, the City/Port of Oakland, and Eagle Rock Aggregates, Inc. Effective June 29, 2023.*

Table 13. Facility Cumulative Increase

Pollutant	Existing Cumulative Increase(ton/yr)	Emission Increase from App #30884 (ton/yr)[1]	New Cumulative Increase (ton/yr)
POC	0.000	3.306	3.306
NOx	0.000	60.439	60.439
SO_2	0.000	1.648	1.648
CO	0.000	9.106	9.106
$PM_{2.5}$	0.000	7.005	7.005
PM_{10}	0.000	14.234	14.234

Note:
1. Cumulative increase from each source (in units of tons/year) are summed after rounding

4.0 OFFSETS

Per Air District Regulation 2-2-302, a facility that meets or exceeds the potential to emit (PTE) 35 tons/year or more of NOx or POC must provide offsets at a 1.15:1 ratio for any un-offset cumulative increase in emissions. If the PTE of NOx or POC between 10 and 35 tons/year, offsets must be provided at a 1:1 ratio.

The only sources of NOx and POC at ERA are OGVs and tugboats. As previously stated, emissions of cargo carriers are included in the assessment of offset requirements in accordance with Regulation 2-2-610. As shown in Table 13, the PTE for NOx and POC emissions are 60.439 tons/year and 3.306, respectively. Therefore, NOx offsets are due at a 1.15:1 ratio and no offsets are required for POC.

Regulation 2-2-303 requires offsets for any new or modified source at a major facility with a potential to emit 100 tons per year or more of PM_{10}, $PM_{2.5}$, or sulfur dioxide (SO_2).

Emissions of PM_{10} and $PM_{2.5}$ at ERA occur from the operation of all sources (S-1 through S-7) as well as the OGV and tugboats. SO_2 only occur from the operation of OGVs and tugboats. As previously shown in Table 13, the facility-wide PTE of PM_{10}, $PM_{2.5}$, and SO_2 are all below the 100 ton/year threshold for providing offsets, so no offsets are required for these pollutants.

For purposes of applying offset requirements on an individual source basis, Air District Regulation 2-2-610 states that emissions from cargo carriers shall be included as part of the cumulative increase of the source that receives or loads the cargo. As such, the cumulative increase of S-1 (Receiving Hopper) will include the emissions from the OGVs and Assist Tugs, and the cumulative increase of S-6 (Barge Loading) will include the emissions from the Barge Tugs (see Table 12). Therefore, NOx offsets will be applied to S-1 and S-6 as shown below, and no offsets will be applied to S-2 through S-5, or S-7.

The table below shows the amount of NOx offsets required for this project, further broken down by applicable source ID. These offsets will be supplied by ERC Certificate #2016, which has a current balance of 73.248 TPY of NOx.

Table 14. NOx Offset Requirements for Facility ID 24848

Source ID	NOx Cumulative Increase (TPY) from AN 30884 (see Tables 12 & 13)	Offset Ratio (Reg 2-2-302.2.2)	Amount to Offset (TPY)
S-1	57.849	1.15:1	66.526
S-6	2.590		2.979
Total	60.439		69.505

5.0 HEALTH RISK ASSESSMENT (HRA)

Respirable Crystalline Silica is the only expected TAC emitted from proposed sources S-1 through S-7 and the emissions from each source are detailed in Section 2 of this report. This is a new facility, so the project TAC emissions include only the respirable CS emissions from S-1 through S-7. The project TAC emissions are summarized below.

Table 15. Project Emissions of Respirable Crystalline Silica

Source ID	Acute			Chronic		
	Hourly Project Emission Rate (lb/hour)	Acute Trigger Level (lb/hour)	Project Exceeds Acute Trigger Level? (Yes/No)	Annual Project Emission Rate (lb/year)	Chronic Trigger Level (lb/year)	Project Exceeds Chronic Trigger Level? (Yes/No)
S-1	5.68E-02	N/A	No	2.58E+01	1.2E+02	No
S-2	1.24E-01		No	5.65E+01		No
S-3 (drop/wind erosion)	9.20E-02		No	5.15E+01		No
S-4	2.07E-02		No	1.55E+01		No
S-5	2.35E-02		No	1.77E+01		No
S-6	2.07E-02		No	1.55E+01		No
S-7	2.07E-02		No	1.55E+01		No
Road Dust	5.44E-01		No	2.03E+02		Yes
Project	**9.02E-01**	**N/A**	**No**	**4.01E+02**	**1.2E+02**	**Yes**

The CS emissions from S-3 (road dust) and the project exceed the chronic trigger level set forth in Table 2-5-1 of Regulation 2, Rule 5. Therefore, an HRA was performed to assess the health risk resulting from the proposed operation. The HRA was based on the CS emissions as shown in Table 15 from all proposed sources (S-1 through S-7) and the results are summarized in the following tables. Note that CS is not a carcinogen and does not have acute health impacts, so the only health risk evaluated is the Chronic Hazard Index (Chronic HI).

Table 16. Source Risk Summary

Source ID	Max Source Chronic HI
S-1	0.00070
S-2	0.0058
S-3 (drop/wind erosion)	0.0049
S-4	0.00078
S-5	0.00068
S-6	0.00062
S-7	0.0031
Road Dust	0.42

Table 17. Project Risk Summary

Receptor	Chronic HI
Resident	0.0048
Worker	0.44

The HRA results indicate that the maximum project Chronic HI (worker) is **0.44**. Since the estimated project chronic HI risk does not exceed 1.0, this project complies with the District's Regulation 2-5-302 project risk requirements, for projects located within an Overburdened Community, as defined in Regulation 2-1-243. The HRA represents an analysis of all sources of TACs at this facility. Therefore, these project HRA results also represent site-wide HRA results for purposes of the Air Toxics "Hot Spots" Act (AB 2588).

6.0 BEST AVAILABLE CONTROL TECHNOLOGY FOR TOXICS (TBACT)

In accordance with District Regulation 2-5-301, TBACT is triggered because the estimated source risk is greater than a cancer risk of 1.0 in a million and/or a chronic HI of 0.20. Specifically, the Fugitive Dust source from site roads (i.e. road dust) individually contributes a **chronic HI of 0.42** (~95% of the project's Chronic HI for Workers). TBACT is triggered for onsite road dust emissions of this project. For the TBACT determination, the cost of controls is not considered, but only feasibility and effectiveness are considered.

TBACT for the road dust is determined to be as follows (see Appendix B for more details and discussion):

- Paving of roads
- Water flushing of paved roads
- Street sweeping of paved roads with a "PM10-efficient" street sweeper
- Limiting visible emissions to 10% opacity

ERA has already proposed paving, water flushing, and sweeping of site roads and site surfaces. The street sweeper will be required to be a "PM10-efficient" sweeper and visible emissions cannot exceed 10% opacity. These requirements will be reflected in the permit conditions. TBACT is satisfied for road dust.

7.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Per Regulation 2-2-301, Best Available Control Technology (BACT) is required for any new or modified source with a regulated air pollutant potential to emit (PTE) equal to or greater than 10.0 lb/day. As shown in Table 11, the daily PTE of PM_{10} and $PM_{2.5}$ from all the proposed sources exceed this 10 lbs/day

threshold. Therefore, BACT review is required for S-1 through S-7. For purposes of this section of this evaluation, the term "PM" will be used to encompass both PM_{10} and $PM_{2.5}$, unless otherwise specified.

Per Air District Regulation 2-2-202, BACT is defined as the most stringent emissions limitation, control device, or control technique that is technologically feasible and cost-effective (BACT 1) or is achieved in practice at other similar sources (BACT 2). BACT 1 is the more stringent level of BACT control and refers to the most effective control devices or techniques that are commercially available, demonstrated effective and reliable, and shown to be cost-effective on a dollar per ton of pollutant removed basis. If a potential BACT 1 control is determined to be technologically feasible and cost-effective, then it will constitute BACT for the source(s) in question. If potential BACT 1 control(s) are determined to be not feasible or not cost-effective, then BACT 2 control(s) will constitute BACT and therefore must be implemented. BACT 2 applies to the most effective emission control technology or most stringent emission limit that is achieved in practice for the type and capacity of equipment/operation comprising the source under review. To be categorized as BACT 2, the control technology or emission limit must be demonstrated to be achieved in practice for the source type under review operating under similar conditions (e.g. similar process throughput, material usage, hours of operation, site-specific limitations or opportunities, etc.). If a control technology or emission limit is achieved in practice under unsimilar conditions for the source in question, it will be considered under the category of BACT 1 for the BACT analysis.

The emission streams from the proposed sources (S-1 through S-7) are broken down into two categories for the BACT analysis. The first category is sand/aggregate handling ("Aggregate Handling") and includes the control technologies/emission limits for emissions from all transfer points (loading, hoppers, conveyors, drop points). Emissions from S-1 through S-7 are included in the first category. The second category is "Storage Piles" and includes the control technologies/emission limits for emissions from the aggregate storage piles (part of S-3 only). The control technologies proposed by ERA for this operation include water spray/wet suppression at all transfer points, watering of the stockpiles, maintaining appropriate moisture content of the materials in process, and installing dust chutes at conveyor transfer points, where possible.

To determine what level of control constitutes BACT for the proposed sources of this operation, the Air District reviewed available control technologies that can be effective at controlling PM from similar source categories of this proposed facility. This review included information submitted with this application, the Air District's own BACT determinations, regulations and permitting actions, and other agencies' emission standards, BACT guidelines, determinations and/or permitting actions. Other agencies/resources reviewed include the United States Environmental Protection Agency's RACT/BACT/LAER Clearinghouse (RBLC), the California Air Resources Board (CARB) BACT Clearinghouse, San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), South Coast Air Quality Management District (SCAQMD), Sacramento Metropolitan Air Quality Management District (SMAQMD), San Diego County Air Pollution Control District (SDCAPCD), Santa Barbara Air Pollution Control District (SBAPCD), and the Mojave Desert Air Quality Management District (MDAQMD). Details of the BACT analysis and additional discussion are provided in Appendix B. The resulting BACT determinations for each type of activity are summarized below.

Aggregate Handling & Storage Piles (S-1 through S-7):

BACT for these operations are as follows:

- Water spray of storage piles and transfer points
- Partial enclosures at transfer points
- Covers over all feasible sections of conveyor belts
- Maintain appropriate moisture content to prevent visible emissions exceeding 5% opacity

The proposed design of each of the fixed conveyor transfer points includes a dust chute to partially enclose the transfer point. Conveyor belt covers were not part of the original design, but ERA will be required by permit condition to install and maintain them over the top half of all feasible sections of conveyor belts, leaving spaces only as necessary for maintenance access, safety purposes, or normal operations. Also, ERA has proposed water spray of the storage piles and all material transfer points, and they will be required to keep aggregates adequately moist to prevent visible emissions exceeding 5% opacity. These requirements will be reflected in the permit conditions. BACT is satisfied for S-1 through S-7.

Road Dust:

See Section 6.0 of this report on Best Available Control Technology for Toxics. The TBACT determination for the paved roads will also be considered BACT for that source. Therefore, BACT is satisfied for Road Dust.

8.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) requires public agencies (e.g., local, county, regional, and state government) to consider and disclose the environmental effects of their decisions to the public and governmental decisionmakers before approving a project. CEQA also mandates that agencies implement feasible mitigation measures or alternatives that would mitigate significant adverse effects on the environment. Projects must comply with the provisions of CEQA, which are found in the California Public Resources Code, Sections 21000 et seq. as well as the State CEQA Guidelines, title 14 of the California Code of Regulations, Sections 15000 et seq., which are administrative regulations governing the implementation of CEQA. The Air District also publishes guidance for evaluating the air quality and climate impacts of projects under CEQA.

The project site is in the Port of Oakland and lies within the boundary of the Oakland Army Base (OAB) Area Redevelopment Plan. An initial Environmental Impact Report for the OAB Area Redevelopment Plan (2002 EIR) was certified by the City of Oakland (City) in July 2002 under State Clearinghouse Number SCH #2001082058. The Port is the Lead Agency under CEQA and has prepared or been involved with multiple addendums to the 2002 EIR. In 2021, the Port prepared a Final Supplemental Environmental Impact Report (FSEIR)[12] for this specific project under the same State Clearinghouse Number SCH #2001082058. The Port filed a Notice of Determination (NOD) with the County of Alameda in February 2022 finding that the project will have a significant effect on the environment and as such, mitigation measures were made a condition of the approval and both a Mitigation Monitoring & Reporting Program (MMRP) and Statement of Overriding Considerations were adopted for the project.

Furthermore, the Port prepared an addendum to the FSEIR (Addendum),[13] which the Port adopted on August 8, 2025 to address two changes to the project. First, the FSEIR had stated the project would include a visual barrier, which the FSEIR alternately identified as a wind screen, on the north, south, and east perimeter of the site. While the FSEIR stated this barrier would vary between 8 and 45 feet tall, tapering down to 8 feet at the entrance to the facility, the Air District understands that the current intent is for this entire barrier to be 8 feet tall. Second, the final proposed project will add one more barge reclaim hopper in addition to what was originally described and analyzed in the FSEIR.

[12] *FSEIR is available for review on the Port of Oakland's webpage for Environmental Stewardship Publications & Documents under "Eagle Rock Aggregates Oakland Terminal Project". Link: https://www.portofoakland.com/business/bids-rfp-center/environmental-stewardship-publications-documents*

[13] *The Addendum is also available for review on the same webpage referenced earlier in Footnote #12.*

In the Addendum, the Port determined that a subsequent or supplemental EIR is not warranted as a result of these changes because the changes will not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects under CEQA Guidelines section 15162. The Air District reviewed and considered the Addendum and also determined a subsequent or supplemental EIR is not warranted. With regard to the visual barrier/wind screen, the FSEIR did not assign any emissions abatement to the barrier and did not take the barrier into account in determining the significance of air quality impacts. And with regard to the barge reclaim hopper, the process design change has no effect on the downstream material throughput capacity of the conveyor system (i.e., the conveyor system downstream of the barge reclaim hoppers is a bottleneck in the process) and therefore, the addition of the second barge reclaim hopper results in no or negligible effects on emission rates of any pollutants.

In evaluating the project in its role as responsible agency, the Air District has reviewed and considered the project's environmental impacts as described in the relevant CEQA documents and in the applicant's permit application. The Air District has prepared CEQA Findings and a Statement of Overriding Considerations for the project, and attached them to this evaluation as Appendix C. The Air District is incorporating mitigation measures from the FSEIR into the permit conditions for this project, but the Air District is not imposing any new mitigation measures under CEQA, so the Air District is not adopting a mitigation monitoring or reporting plan. Some of the mitigation measures that were incorporated into the Air District's evaluation of this application and will be included in the permit conditions for the proposed sources include the following:

- Accepting OGV deliveries from a minimum of 25% Tier 2 (or better) rated OGVs
- Washing of truck tires before exiting the site
- Sweeping on-site roads a minimum of twice daily during all days of operation
- Maintaining trees and other landscaping planted between the site and the West Oakland neighborhood to reduce transport of PM2.5.

9.0 PUBLIC NOTIFICATION

Regulation 2, Rule 1, Section 412, Public Notice, Schools & Overburdened Communities applies to new or modified sources located within 1,000 feet of the boundary of a K-12 school. This regulation also applies to new or modified sources located in an Overburdened Community (OBC) as defined in Regulation 2-1-243 and for which an HRA is required. The proposed sources are not located within 1,000 feet of a school. However, they are located in an OBC and require an HRA, so public notification is required. Typically, public notifications are sent to all addresses within a radius of 1,000 feet of the source, as is required by District Regulation 2-1-412.2. Because there are few addresses within 1,000 feet of the proposed sources, the public notification radius was extended to 5,000 feet for this application to include more addresses.

Additionally, the facility is located in a community, West Oakland, that subjects it to California Assembly Bill 617 (AB 617: Community Health Protection Program). Under the Program, West Oakland was selected for an emission reduction plan. The Air District has been working with the West Oakland Environmental Indicators Program (WOEIP) as the primary partner in West Oakland to develop and implement the plan. Air District permit staff had a meeting with representatives from WOEIP about this project. In addition, prior to initiating the public notice period for this project, Air District staff notified WOEIP separately.

The 30-day public comment period commenced on September 16, 2025, and ended on October 17, 2025. The Air District received a total of sixty-seven (67) comments from sixty-one (61) individuals. Sixty-six (66) of them were submitted via email and one (1) submitted via voicemail. The various comments are further broken down as follows:

- Twelve (12) comments entirely in opposition to the project
- Forty-six (46) comments that were opposed to the project, unless more stringent requirements were imposed
  - One (1) of these comments also included a part calling for a stop to a California Senate Bill that is unrelated to this project
- Three (3) comments requesting additional information and pointing out specific concerns from the Air District's evaluation
- Four (4) comments that did not express outright opposition to the project, but were concerned about health impacts and urged consideration of more stringent requirements in the permit
- One (1) comment summarized the project's regulatory history and the outcome of past litigation. This comment ultimately agreed with the Air District's evaluation
- One (1) comment that just noted a personal respiratory health issue, but did not express if they oppose or support the project

The Air District prepared a public comment response document by compiling the various contents of the comments into several categories and used that document as the medium for responding/addressing points, concerns, and questions raised by the comments. This document also includes: a section that discusses the changes made to the permit conditions post-public notice, an appendix containing the revised permit conditions in strikeout-underline format, and another appendix containing copies of all the public comments received. This document was posted on the same Air District webpage that hosted this application's public notice[14], and a link was sent to each commenter via email.

The public comment period has concluded, and all comments have been addressed. The requirements of Regulation 2-1-412 are satisfied for this project.

10.0 STATEMENT OF COMPLIANCE

Excepting the requirements that have already been discussed, this section will discuss the proposed sources' compliance with all other applicable Air District and Federal requirements.

10.1 Air District Regulations

Regulation 1: General Provisions and Definitions

Regulation 1, Section 440, Right of Access to Premises: The Air District may be interested in conducting its own air monitoring at the facility in the future and it may do so in accordance with this section. A provision describing this authority is explicitly included in the permit conditions for S-1 through S-7.

Regulation 2, Rule 1: Permits, General Requirements

Regulation 2, Rule 1, Section 310, Applicability of California Environmental Quality Act (CEQA), specifies that all proposed new and modified sources subject to District permit requirements must be reviewed in accordance with CEQA requirements, except for ministerial projects meeting the requirements of Regulation

[14] *The public comment response document prepared to address the public comments is available on the Eagle Rock Aggregates Inc Public Notice page on the Air District website at the following link: https://www.baaqmd.gov/en/Permits/Public-Notices/Page-Resources/Table-Data/2025/091625-30884/Eagle-Rock-Aggregates-Inc*

2-1-311 or projects exempt from CEQA under Regulation 2-1-312. This project has been reviewed in accordance with CEQA requirements in Section 8.0.

Regulation 2, Rule 2: New Source Review

Regulation 2, Rule 2, Section 301, Best Available Control Technology Requirement, requires BACT for any new or modified source with potential emissions of 10.0 lb per day or more of POC, NPOC, NO_x, PM_{10}, $PM_{2.5}$ or SO_2. Section 2-2-610 specifically excludes cargo carriers from BACT requirements, therefore emissions from ships are not subject to BACT. S-1 through S-7 have been reviewed for BACT in Section 7.0.

Regulation 2, Rule 2, 302, Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides, states that offsets must be provided for any new or modified source at a facility that emits, or is permitted to emit, more than 10 tons per year of POC or NO_X.

Regulation 2, Rule 2, 303, Offset Requirements, PM_{10}, $PM_{2.5}$, and Sulfur Dioxide, requires offsets for any new or modified source at a major facility with a PTE that exceeds 100 ton per year of PM_{10}, $PM_{2.5}$, or SO_2. PTE of PM_{10}, $PM_{2.5}$, and SO_2 is less than 100 tons/year. Offsets requirements have been reviewed and are discussed in Section 4.0.

Regulation 2, Rule 2, 501, Post-Construction Monitoring, describes the Air District's authority to impose air quality monitoring requirements on a facility as necessary to determine the effect of the facility's emissions on the area. The Air District is not planning to require the owner/operator to conduct air monitoring at the facility from the outset of operations. However, the permit conditions for S-1 through S-7 include a provision that allows the Air District to potentially impose air monitoring requirements in the future if there are demonstrated ongoing deficiencies in the facility's dust prevention/management programs.

Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants

Pursuant to this Regulation, any modified source of TACs is required to undergo a HRA if TAC emissions exceed the hourly or annual thresholds outlined in Table 2-5-1. An HRA was performed and Section 5 of this evaluation report discusses compliance with this rule.

Regulation 2, Rule 6: Major Facility Review

The requirements of the federal operating permit program have been codified in District Regulation 2, Rule 6. This rule requires that major and designated facilities apply for and obtain a Title V federal operating permit. Since this facility will emit less than 100 tons/year each of NOx, CO, POC, PM_{10}, and SO_2, less 10 tons/year of any single Hazardous Air Pollutant (HAP), and less than 25 tons/year of all HAPs combined, it is not considered to be a major facility of regulated air pollutants. This facility is also not a designated facility pursuant to any federal NSPS or NESHAP requirements. Therefore, Regulation 2, Rule 6 does not apply to this site.

Regulation 6: Particulate Matter – Common Definitions and Test Methods

Regulation 6, Sections 601 & 602, describe the required methodology for assessing visible emissions and opacity of visible emissions. To ensure that the owner/operator assesses visible emissions appropriately and accurately from S-1 through S-7, the Air District has explicitly included the respective methods for each type of visible emissions assessment required by the permit conditions. Furthermore, the Air District has included staff training requirements in the permit conditions.

Regulation 6, Rule 1: Particulate Matter – General Requirements

Regulation 6, Rule 1, Sections 301 & 302, require that visible emissions do not meet or exceed Ringelmann 1.0 for periods aggregating more than 3 minutes in any hour or equivalent opacity (greater than or equal to 20% opacity). ERA will be expected to meet these requirements and, in most cases, will be limited by permit condition to opacity levels more stringent than what is required by these sections of this rule.

Regulation 6, Rule 1, Section 305, Visible Particles, prohibits a public nuisance caused by the fallout of visible particulate emissions. This Section only applies if such particles fall on real property other than the property of the person responsible for the emissions.

Regulation 6, Rule 1, Section 307, Visible Emissions Within and From Regulated Bulk Material Sites, limits visible emissions from Regulated Bulk Material Sites, such as this proposed ERA facility. ERA will be expected to comply with the requirements of both Sections 307.1 and 307.2 of this rule. These requirements will be included in the permit conditions for the applicable proposed sources.

Regulation 6, Rule 1, Section 311, Total Suspended Particulate (TSP) Weight Limits, limits TSP from any source based on the process weight rate. Section 311.1 applies to sources with a PTE of TSP that is less than or equal to 1,000 kg/year and Section 311.2 applies to sources that have a PTE greater than 1,000 kg per year (1.1 tons per year) of TSP. The PTE of TSP from each source were calculated using PM_{30} emission factors and the same methodologies described in Section 2 of this evaluation. Per AP-42 Chapter 13.2, Fugitive Dust Sources, PM_{30} may be used as a surrogate for TSP. The table below summarizes the process weight rates, and TSP emission rates compared to the applicable TSP emission limits for each proposed source.

Table 18. Process Weight Rates & TSP Emission Limits (S-1 through S-7)

Source ID	PTE TSP (kg/year)	Process Wt Rate[1] (lbs/hr)	Hourly TSP Emission Rate (lbs/hr)	TSP Emission Limit (lbs/hr)	Exceeds TSP Limit?
S-1 Receiving Hopper	2,347	11,000,000	11.4	30	No
S-2 Ship Unloading & Stacking Conveyor System	5,103	11,000,000	24.8	30	No
S-3 Stockpiles (drop point only)[2]	2,347	11,000,000	11.4	30	No
S-4 Barge Reclaim Hoppers	1,408	4,000,000	4.1	30	No
S-5 Barge Loading Conveyor System	1,592	4,000,000	4.7	30	No
S-6 Barge Loading	1,408	4,000,000	4.1	30	No
S-7 Truck Loading	1,408	4,000,000	4.1	30	No

Notes:
1. Hourly process weight rates are equal to maximum hourly material throughput listed in Table 3.
2. Only drop point emissions from S-3 were considered. Wind erosion and road dust do not have process weight rates to evaluate for Regulation 6-1-311.

As shown above, all proposed sources have a PTE of TSP below the applicable limits set forth in Regulation 6-1-311.2, Table 6-1-311.2. All proposed sources comply with TSP Weight Limits.

Regulation 6, Rule 1, Section 602, Methods for Determining Compliance, states that source tests are not required if a source cannot be modified to comply with source test requirements and testing is not physically possible. The proposed sources of this application do not have defined stacks and therefore are not subject to source testing to determine compliance with TSP emissions limits.

Regulation 6, Rule 6: Particulate Matter – Prohibition of Trackout

Regulation 6, Rule 6 limits the trackout of particulate matter onto public roadways from large bulk material sites, large construction sites, and large disturbed surface sites. ERA meets the definition of a large bulk material site since the facility has a stockpile of material greater than 100 square feet. Section 301 limits the extent of trackout to 25 cumulative linear feet and limits the amount of trackout material to 1 quart. Section 302 limits visible emissions during cleaning activities to 20% opacity or Ringelmann 1.0 for 3-minutes in any hour. Regulation 6-6-501 requires ERA to monitor the extent of trackout at the facility exits at least two times per each work-day, keep records of any times when trackout exceeds the 25 foot limit, and keep records of all related cleanup events. ERA will be expected to maintain compliance with the requirements of this rule.

10.2 Federal Regulations:

New Source Performance Standards (NSPS)

ERA is not subject to NSPS, 40 CFR 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants based on §60.670(a)(2), which states:

> (2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in §60.671).

Although the facility is not subject to the above NSPS, ERA is still expected to comply with the opacity limits of the NSPS in Table 3 – Fugitive Emission Limits. Permit conditions will include visible emission compliance requirements, which are more stringent than NSPS.

National Emission Standards for Hazardous Air Pollutants (NESHAPS)

There are no subparts under 40 CFR 61 or 40 CFR 63 that apply to bulk aggregate receiving/loading operations like the sources proposed in this application. Therefore, NESHAPS are not applicable.

11.0 PERMIT CONDITIONS

Permit Condition #100592 – Applies to S-1 through S-7

1. At least thirty (30) days prior to the initial startup of any source(s) at this facility, the owner/operator shall submit the facility procedures for Dust Management & Visible Emissions Evaluation to the Air District for review. The owner/operator must obtain approval in writing from the Air District of such procedures prior to commencing operation of S-1 through S-7. Any

revisions to these procedures shall be approved in writing by the Air District prior to implementation. Copies of the most recently approved version of such procedures shall be retained on site and made available to District staff upon request.
(Basis: Regulation 2-1-403, Regulation 6, Regulation 6-1)

2. During all times of operation, the owner/operator shall ensure there is at least one (1) person present on-site who meets at least one of the following criteria:

   (a) Someone who holds a valid Visible Emissions Evaluation (VEE) certification issued by the California Air Resources Board (CARB); or
   (b) Someone who has been trained in the facility's most recently approved version of procedures for Dust Management & Visible Emissions Evaluation (per Part 1 of these conditions). To meet the criteria of this subpart, a person shall be trained in such procedures at least once every 6 months, and again after any revisions to the procedures have been implemented. Training in the procedures for Dust Management & Visible Emissions Evaluation shall be conducted by someone who is familiar with facility operations and has been VEE certified or recertified by CARB within the 12-month period immediately preceding the date they conduct the training.

   To demonstrate compliance with this part, the owner/operator shall maintain the following records and make them available to District staff upon request:

   (c) A list or log of all staff and/or contractors who have been trained in the facility's procedures for Dust Management & Visible Emissions Evaluation within the previous consecutive 24-month period, including all dates they received the training within that period, and the instructor for each training session attended; and
   (d) A list or log of all staff and/or contractors who have conducted at least one training session of the facility's procedures for Dust Management & Visible Emissions Evaluation within the previous consecutive 24-month period, including copies of their VEE certifications and/or re-certifications issued within that period.

   (Basis: Regulation 2-1-403, Regulation 6, Regulation 6-1)

3. The owner/operator shall only receive and process aggregates at this facility. For purposes of this permit, the term "aggregate(s)" encompasses both fine and coarse aggregate materials (i.e. sand and gravel).
   (Basis: Cumulative Increase, Regulation 2-5)

4. The owner/operator shall ensure the following material throughput and storage limits listed below are not exceeded:

   (a) Receiving/Ship Unloading Operations (S-1 & S-2): 2,500,000 tons of aggregate through each source per rolling consecutive 12-month period. (Basis: Cumulative Increase)
   (b) Barge Loading Operations (S-4, S-5, & S-6): 1,500,000 tons of aggregate through each source per rolling consecutive 12-month period. (Basis: Cumulative Increase)
   (c) Truck Loading Operations (S-7): 1,500,000 tons of aggregate per rolling consecutive 12-month period. (Basis: Cumulative Increase)
   (d) Notwithstanding the limits set forth in Parts 4(b) and 4(c) of this condition, the owner/operator shall not exceed a combined total of 2,500,000 tons of aggregate shipped

offsite by truck and barge per rolling consecutive 12-month period. (Basis: Cumulative Increase)

5. To demonstrate compliance with Parts 3 and 4 of this condition, the owner/operator shall maintain the following records:

   (a) Throughput records of all aggregates (in tons) on a daily and monthly basis for:
      (i) Ship Unloading
      (ii) Barge Loading
      (iii) Truck Loading
   (b) The owner/operator shall use the monthly records to calculate and record the material throughput at each source (S-1 through S-7) on a rolling consecutive 12-month basis.

   These records shall be maintained in a District-approved log for at least 24 months from the date of entry. Log entries shall be retained on-site and made available to District staff upon request. (Basis: Cumulative Increase, BACT, Regulation 2-1-403)

6. The owner/operator shall not accept more than forty-eight (48) ship deliveries per rolling consecutive 12-month period.
   (Basis: Cumulative Increase, Offsets)

7. The owner/operator shall ensure a minimum of 25% of all annual ship deliveries are made by vessels with main engines meeting USEPA Tier 2 or higher Tier emissions standards for marine compression-ignition engines. For the purposes of demonstrating compliance with this part of this permit condition, each annual reporting period shall be from July 1 to June 30 of the following year. (Basis: CEQA, Cumulative Increase, Offsets)

8. The owner/operator shall not ship aggregates by barge to any destinations other than those specified below, and the owner/operator shall not exceed the following barge-towing tugboat (barge-tug) trip limitations to each destination during a rolling consecutive 12-month period:

DESTINATION	BARGE-TUG TRIP LIMIT
SF Pier 92 or Treasure Island	105 trips/year
Shamrock Petaluma	40 trips/year

   Each "trip" is defined as one (1) barge-tug traveling round-trip from Berth 22 in the Port of Oakland to the destination (or vice versa). When more than one tugboat is used, the number of barge-tug trips should be multiplied by the number of tugboats used for each round-trip from Berth 22 in the Port of Oakland to the destination.
   (Basis: Regulation 2-2-610, Offsets)

9. The owner/operator may ship aggregates to alternate locations than those specified in Part 8 and/or the owner/operator may exceed the number of barge-tug trips specified in Part 8, provided that the owner/operator can demonstrate to the satisfaction of the APCO that the combined NOx mass emissions from all cargo carriers (including ocean-going vessels, assist tugboats, and barge-tugs) do not exceed 60.439 tons per rolling consecutive 12-month period.

   If the NOx mass emission limit specified above is exceeded, the owner/operator shall offset the exceedance by supplying valid emission reduction credits (ERC) at a 1.15:1 ratio.
   (Basis: Regulation 2-2-610, Offsets)

10. To demonstrate compliance with Parts 6, 7, 8, and 9 of this condition, the owner/operator shall maintain the following records:

    (a) For each ship delivery, record the date, the time of arrival to berth, the time of departure from berth, the name of the vessel, the vessel's International Maritime Organization (IMO) identification number, and the USEPA Tier Rating of the vessel's main engine.
    (b) Maintain an index of the following information for each vessel that makes one or more deliveries to the facility:
        (i) Vessel name, IMO vessel identification number, and vessel flag
        (ii) Number of main and auxiliary engines
        (iii) Official technical specifications and/or official data sheets for each vessel's main and auxiliary engines that include at least the following information:
            (1) Model name(s)
            (2) Power rating(s)
            (3) USEPA Tier rating(s); or other information that can be used to discern the tier rating(s)
    (c) For each outgoing barge shipment, record the date, the destination, and the number of barge-tugs used.
    (d) To demonstrate compliance with Part 9 when applicable, NOx mass emission calculations from all cargo carriers per rolling consecutive 12-month period.

    These records shall be maintained in a District-approved log for at least 24 months from the date of entry. Log entries shall be retained on-site and made available to District staff upon request. (Basis: Cumulative Increase, Offsets, Regulation 2-1-403)

11. The owner/operator of this facility shall ensure that the entire site is paved and that the following on-site vehicle travel distance limits for each vehicle type are not exceeded:

    (a) Front-end Loaders: 7,000 vehicle-miles traveled (VMT) on-site, per rolling consecutive 12-month period.
    (b) Customer Trucks: 42,000 VMT on-site, per rolling consecutive 12-month period.

    (Basis: Cumulative Increase, TBACT, Regulation 2-5)

12. To demonstrate compliance with Part 11 of this condition, the owner/operator shall maintain monthly VMT records for on-site vehicles as follows:

    (a) To demonstrate compliance with Part 11(a), the owner/operator shall track the odometer readings of Front-end Loaders on a monthly basis.
    (b) To demonstrate compliance with Part11(b), the owner/operator shall multiply the monthly number of Customer Trucks by the distance of the typical route traveled within the facility.

    These records shall be maintained in a District-approved log for at least 24 months from the date of entry. Log entries shall be retained on-site and made available to District staff upon request. (Basis: Regulation 2-1-403, Recordkeeping)

13. Prior to commencing any aggregate transfer activity and before any additional material is loaded, deposited, or disturbed, the owner/operator shall ensure that the surface of aggregate stockpiles, hoppers, barge material holding area, or truck material holding area is adequately wetted such that

handling or disturbance of the material does not result in visible fugitive dust emissions. Water sprays or equivalent dust suppression methods shall be used as needed to maintain compliance with this part of this condition. No material shall be transferred or material surface disturbed when such activity would generate visible fugitive dust emissions.
(Basis: Regulation 2-1-403)

14. The owner/operator shall properly maintain the Dust Suppression/Water Spray System (A-1) in accordance with equipment manufacturer specifications and shall ensure that all pumps, spray nozzles, piping, and control components are operational and capable of delivering water sufficient to control fugitive dust emissions at all times that process equipment is operating. Additionally, an inspection of the condition of all components of the Dust Suppression/Water Spray System shall be conducted at least once per month. The owner/operator shall document the results of these monthly inspections, maintain these records on-site for at least twenty-four (24) months from the date of entry, and shall make them available to District staff upon request.
(Basis: Regulation 2-1-403)

15. The owner/operator shall install and maintain covers over all feasible sections of the conveyor belts. At a minimum, the conveyor covers shall cover the top half of the conveyor belts, however openings in the top half are permitted only as necessary for maintenance access, safety, or normal operations.
(Basis: BACT)

16. The owner/operator shall not cause or allow trackout or fugitive dust emissions from S-1 through S-7 (including road dust) to be discharged in such quantities as to cause a public nuisance per District Regulation 1-301. Additionally, the owner/operator shall not cause or allow any visible fugitive dust emissions from S-1 through S-7 (including road dust) to exceed the respective opacity limits set forth below:

    (a) From S-1 through S-7, excluding road dust: 5% opacity (or Ringelmann 0.25) for a total of three (3) or more minutes in any 60-minute period.
    (b) From on-site vehicle road dust: 10% opacity (or Ringelmann 0.5) for a total of three (3) or more minutes in any 60-minute period.

    (Basis: Regulation 1, BACT, TBACT)

17. The owner/operator shall observe site operations to monitor for visible emissions at times when the potential for fugitive particulate emissions is highest due to wind conditions, work activities, and/or type of aggregate in process. For purposes of this part of this permit condition, “visible emissions” shall be determined to be present from an operation if any visible dust or particulates are observed to travel or carry beyond the site property line for any amount of time during the observation period set forth in this part of this condition;

    This monitoring shall be conducted in accordance with the following requirements:

    (a) Each of the following activities and potential sources of fugitive dust shall be monitored for visible emissions at least twice during every day they are operated:
        (i) Ship Unloading, including the receiving hopper (S-1) and conveyors (S-2).
        (ii) Stockpile Loading & Unloading, including any other activities that disturb the stockpile surface (part of S-3).

(iii) Stockpiles, monitoring for wind erosion or windblown dust (part of S-3). Every facility operating day where any aggregate material is present at any stockpile shall be considered a day that this source is operated.
(iv) Road Dust from on-site vehicle operations (part of S-3).
(v) Barge Loading, including loading of reclaim hoppers (S-4), conveyors (S-5), and loading of barges (S-6).
(vi) Truck Loading (S-7).

(b) Methods used for observation and records shall be in accordance with EPA Method 22 (or other method approved by the Air District) and observations shall be conducted by a person who is trained per either of the criteria set forth in Parts 2(a) or 2(b) of this condition;
(c) For each monitoring event conducted at each operation, the observation period shall be no less than 10 minutes;
(d) The owner/operator shall document the sources/operations monitored and the results of each monitoring event in a District-approved log. These records shall be retained on-site for at least twenty-four (24) months from the date of entry and shall be made available to District staff upon request.

(Basis: Regulation 2-1-403, Regulation 6-1)

18. If "visible emissions" are observed from an operation via the monitoring required by Part 17 of this condition, or if the owner/operator otherwise observes dust/particulates travelling or carrying from any site operation to beyond the site property line, the owner/operator shall proceed in accordance with the following subparts:

(a) Within 15 minutes of observation of visible emissions, the owner/operator shall (1) increase water sprays, dust suppression methods, or initiate another corrective action to reduce fugitive dust emissions at the affected source(s) or operation(s), and (2) initiate conducting an assessment of visible emissions in accordance with either subpart 18(b) or 18(c) below.
(b) If a person with a valid visible emissions evaluation (VEE) certification is present on site, the assessment required by this part shall be for opacity of visible emissions using EPA Method 9 (or other method approved by the Air District in writing) and shall be conducted by someone with a valid VEE-certification. The results of this test shall be used to demonstrate compliance with the applicable opacity standard set forth in Part 16 of this condition. If the results exceed the applicable Part 16 limit, the owner/operator shall do the following:
(i) Repeat all actions required by subpart 18(a), unless the exceedance can be attributed to external environmental factors;
(ii) If external environmental factors are preventing compliance with the applicable Part 16 limit, the owner/operator shall cease operating the affected source(s) until environmental conditions improve. The owner/operator shall then repeat the visible emissions assessment required by subpart 18(a) upon re-starting operation of the affected source(s);
(iii) Any exceedances of the Part 16 limits shall be reported to the Air District's Compliance & Enforcement Division within 24 hours from when the exceedance is observed. This notification shall, at a minimum, include the noncompliant source(s), the time of the event(s), description of the event(s), the test method used, the opacity results, and any other records demonstrating the exceedance(s), the corrective action(s) taken, and if the issue persists or has already been resolved.
(c) If no person with a valid VEE-certification is present on site, the assessment required by this part shall be for the presence of visible emissions using EPA Method 22 (or other

method approved by the Air District in writing) and shall be conducted by a person trained per the criteria set forth in Part 2(b) of this condition. This test shall assess the accumulated amount of time that emissions are visible during a 60-minute observation period. If visible emissions are observed to travel or carry beyond the site property line for an aggregate period of three (3) or more minutes during the observation period, the owner/operator shall do the following:

(i) Repeat all actions required by subpart 18(a), unless the visible emissions can be attributed to external environmental factors;

(ii) If external environmental factors are preventing the elimination of visible emissions, the owner/operator shall cease operating the affected source(s) until environmental conditions improve. The owner/operator shall then repeat the visible emissions assessment required by subpart 18(a) upon re-starting operation of the affected source(s);

(iii) Any instances of visible emissions observed to travel or carry beyond the site property line for an aggregate period of three (3) or more minutes during a 60-minute period shall be reported to the Air District's Compliance & Enforcement Division within 24 hours from the conclusion of the observation period. This notification shall, at a minimum, include the noncompliant source(s), the time of the event(s), description of the event(s), the test method used, the accumulated amount of time that emissions were visible during the test, the corrective action(s) taken, and if visible emissions persist or have already been resolved.

(d) The owner/operator shall document all corrective action(s) taken, the source(s) and/or operation(s) tested, the name of the person who conducted the test, the type of test, and all test results in a District-approved log. These records shall be retained on-site for at least twenty-four (24) months from the date of entry and shall be made available to District staff upon request.

(Basis: Regulation 2-1-403, Regulation 6-1)

19. The owner/operator of this facility shall:

(a) Ensure all customer truck tires are washed before exiting the site onto a paved public road or shoulder of a paved public road; and
(b) Sweep on site roads a minimum of twice daily during all days of operation using a PM10-efficient street sweeper; and
(c) Utilize any additional measures as necessary to prevent and control trackout of solid materials onto paved public roads in accordance with District Regulation 6-6-301

(Basis: CEQA, TBACT, Regulation 6-6)

20. In addition to the applicable Monitoring & Recordkeeping requirements set forth in District Regulation 6, Rule 6, the owner/operator of this facility shall document the activities required by Parts 19(a), 19(b), and 19(c) of this condition on a daily basis. These records shall be maintained in a District-approved log and shall be retained on site at least twenty-four (24) months from the date of entry and shall be made available to District staff upon request.
(Basis: Recordkeeping, Regulation 6-6)

21. During cleanup of any trackout or any material spill, the owner/operator of the facility shall not cause or allow fugitive dust visible emissions that exceeds 20% opacity and/or Ringelmann 1 for a total of three (3) or more minutes in any 60-minute period.

(Basis: Regulation 6-6)

22. At the end of each operating day, the owner/operator shall ensure that all aggregate stockpile surfaces and site surfaces are free of loose material or sufficiently stabilized to minimize the potential for fugitive dust emissions during periods of non-operation. At the end of each operating day, the owner/operator shall document any measures implemented and the condition of the aggregate stockpile surfaces and other site surfaces. Records may include written descriptions, checklists, photographs, and/or other applicable documentation, and shall be maintained in a District-approved log for at least twenty-four (24) months from the date of entry. Log entries shall be retained on-site and made available to District staff upon request.

    The following definitions apply for the purposes of this part of this condition:

    "Loose material" refers to unconsolidated material that would generate visible fugitive dust under typical site wind conditions.

    "Sufficiently stabilized" includes adequate watering, natural crust formation on undisturbed aggregate stockpiles, covers, or other District-approved methods that prevent visible fugitive dust emissions.
    (Basis: Regulation 2-1-403)

23. Individual aggregate piles shall be sampled weekly in accordance with Standard Practice for Sampling Aggregates ("ASTM D75/DM75-19" or current) and tested weekly for moisture content in accordance with Standard Test Method for Total Evaporable Moisture Content of Aggregate By Drying ("ASTM C566-19" or current). Samples shall be collected from the surface of each quadrant (i.e. north, south, east, and west) of each individual stockpile. The target moisture contents are as follows:

    (a) Fine Aggregates (Sand): five (5) to eight (8) percent; and
    (b) Coarse Aggregates (Gravel): one (1) to two (2) percent

    If weekly moisture testing results are below moisture targets, frequency of watering shall increase as reasonably determined to be necessary to achieve desired moisture content. Records of all moisture content testing results shall be retained on site for at least twenty-four (24) months from the date of testing and shall be made available to District staff upon request.
    (Basis: Settlement Agreement, 2-1-403, and 2-2-501)

24. The owner/operator shall maintain the trees and other landscaping planted between the site property and the West Oakland neighborhood to reduce transport of PM2.5, in accordance with Mitigation Measure ERA AQ-1 of this project's 2021 Final Supplemental Environmental Impact Report (FSEIR).
    (Basis: 2-1-403, CEQA)

25. The Air District may conduct (install, operate, and maintain) air monitoring at the facility for meteorological parameters and particulate matter, including particulate matter with a diameter less than 2.5 microns (PM2.5) and/or 10 microns (PM10). If the Air District informs the facility that it intends to conduct air monitoring for meteorological parameters and particulate matter, the facility shall provide such access to the Air District as is reasonably necessary to conduct such air monitoring, provided that the Air District does not interfere with owner/operator's operations, and subject to the remaining provisions of this Part 25. All Air District employees and contractors must

(i) adhere to all applicable laws and regulations, including safety laws and regulations, and to owner/operator's safety requirements, and (ii) have completed owner/operator's onsite safety training during the calendar year in which access is requested. If the Air District desires access to the facility during off-hours, weekends, or holidays, it shall provide owner/operator with a minimum of twenty-four (24) hours advance notice. Notwithstanding the foregoing provisions of this Part 25, owner/operator may temporarily restrict or reroute access to specific areas of the facility if owner/operator believes that active operations or hazardous conditions pose an immediate risk to the Air District's or its contractor's employees, or to owner/operator's employees. The Air District understands location, installation, and existing infrastructure including access to electricity required to install, operate, and maintain air monitors requires coordination with the owner/operator and may require a tenancy agreement and electricity usage fee. Access shall be provided to the Air District or approved contractors at all times, including off work hours during evenings or weekends. (Basis: 1-440 and 2-1-403)

26. If one or more of the below criteria are met, the Air District may require the facility to conduct ongoing air monitoring for meteorological parameters and particulate matter, including but not limited to PM2.5 and/or PM10.

    a. A total of three (3) or more occasions, consisting of any combination of (i) exceedances of the Part 16 opacity limits and (ii) instances of visible emissions as described in Part 18(c)(iii), on a facility-wide basis, within a rolling consecutive 90-day period; or
    b. A total of six (6) or more occasions, consisting of any combination of (i) exceedances of the Part 16 opacity limits and (ii) instances of visible emissions as described in Part 18(c)(iii), on a facility-wide basis, within a rolling consecutive 12-month period; or
    c. Two (2) or more District-issued violation notices for public nuisances (per District Regulation 1-301) attributable to sources of dust or particulate matter originating from the facility within a rolling consecutive 180-day period; or
    d. Three (3) or more weeks containing at least three (3) moisture content results that are lower than the applicable target moisture contents set forth in Parts 23(a) and 23(b), within a rolling consecutive 13-week period; or
    e. Three (3) or more days containing evidence of particulate matter crossing the fenceline that originated from the facility, within a rolling consecutive 30-day period.

    (Basis: 2-1-403 and 2-2-501)

27. If the Air District informs the facility that air monitoring is required as set forth in Part 26, the owner/operator shall develop an air monitoring plan that establishes monitoring objectives, locations of the air monitors, the air monitoring methods, the requirements for routine operation, quality assurance and quality control, data management, data validation, and data reporting, as well as a timeline for when air monitoring and data reporting will commence.

    The air monitoring plan shall be developed in consultation with the Air District and in accordance with Air District guidance.

    The air monitoring plan shall be submitted for approval within 45 days of notification that air monitoring is required. The Air District may propose revisions, after consultation with the owner/operator, to the air monitoring plan, and the owner/operator shall implement any such revisions within 15 days of receipt of the revisions from the Air District.

The facility shall complete the installation and begin conducting air monitoring within 120 days after the Air District notifies the facility that the air monitoring plan is approved.

The facility shall conduct air monitoring in compliance with the approved air monitoring plan. (Basis: 2-1-403 and 2-2-501)

End of Conditions

12.0 RECOMMENDATION

The Air District has reviewed the material contained in the permit application for the proposed project and has addressed the public comments received. The Air District's determination is that the project complies with all applicable requirements of District, state, and federal air quality-related regulations. I recommend that the Air District issue an Authority to Construct for the proposed sources, all of which are listed below:

S-1 Receiving Hopper
S-2 Ship Unloading & Stacking Conveyor System
S-3 Sand & Aggregate Stockpiles (3 stockpiles & paved road dust)
S-4 Barge Reclaim Hoppers
S-5 Barge Loading Conveyor System
S-6 Barge Loading
S-7 Truck Loading

By: Date: August 4, 2026

Cameron Fee
Senior Air Quality Engineer

Appendix A
Cargo Carrier Emissions

Facility ID 24848 Application No. 30884

Cargo Carrier Emissions – Ocean-Going Vessels

As described in Section 2.2 of this evaluation, the data and parameters used to calculate emissions from ocean-going vessels (OGVs) and other cargo carrier vessels are from the sources summarized below. The notations shown in parentheses below will be used throughout this Appendix to note the basis of data, parameters, or methodologies used in the calculations.

- (ERA) – Vessel specific data submitted by Eagle Rock Aggregates
- (2020 Port Oakland) – The 2020 Port of Oakland Emissions Inventory report
- (2021 CARB-OGV) – The 2021 CARB Ocean-Going Vessels Emissions Inventory report
- (2021 CARB-CHC) – Appendix H, 2021 CARB Emission Inventory for Commercial Harbor Craft
- (2007 CARB-CHC) – The 2007 CARB Emissions Estimation Methodology for Commercial Harbor Craft

The table below shows the OGV specifications for the two vessels that will be used as representative vessels for the emission calculations. The information in the table is from data submitted by ERA, unless otherwise specified.

Table A1. Ocean-Going Vessel Information

Vessel Name	Cruise/Design Speed (kn)	Max Speed[1] (kn)	Main Engine Power (kW)	Main Engine Tier Rating	# Aux Engines	Total Aux Engine Power (kW)	Aux Engine 1 (kW)	Aux Engine 2 (kW)	Aux Engine 3 (kW)	Aux Engine Tier Rating	Boiler Power (kW)
HH Jackman	15.75	16.8	12,085	Tier 0	3	2,700	900	900	900	Tier 0	132
CSL Tecumseh	14.5	15.5	10,430	Tier 2	3	3,438	1,250	1,250	938	Tier 0	132

Notes:

1. Maximum speed calculated assuming cruise speed is 93.7% of maximum speed (2020 Port of Oakland)

The emission factors used for the emission calculations are shown in the table below. For purposes of this evaluation, emissions from "HH Jackman" represent emissions from OGVs with Tier 0 main engines and emissions from "CSL Tecumseh" represent emissions from OGVs with Tier 2 main engines. Emissions from all auxiliary engines are assumed to be Tier 0.

Table A2. OGV Engine & Boiler Emission Factors

Engine Type	Tier Rating	Pollutant Emission Factors (g/kW-hr)					
		ROG (POC)	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$
Main Engine	Tier 0	0.78	1.38	0.362	17.0	0.189	0.174
Main Engine	Tier 2	0.78	1.38	0.362	14.4	0.189	0.174
Aux Engine	Tier 0	0.52	1.10	0.424	13.8	0.182	0.168
Boiler	-	0.11	0.20	0.587	1.995	0.164	0.151

Notes:

1. SO_2 emission factors are from 2021 CARB-OGV. All other pollutant emission factors are from 2020 Port Oakland.

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Information on each segment of the full OGV round-trip is presented below. The route presented is representative of the longest route that an OGV would use.

Table A3. OGV Route Segment Descriptions

Segment ID	Segment Description[1]	Segment Distance[1] (nautical miles)	Vessel Speed[2] (knots)	Segment Time[3] (hours)
IN-1	Precautionary Zone (PZ) Outer Edge to Pilot Boards	6.8	15.75 / 14.5	0.43 / 0.47
IN-2	Pilot Boards to Sea Buoy	1.5	9.0	0.17
IN-3	Sea Buoy to Golden Gate	8.7	13.5	0.64
IN-4	Golden Gate to Harding Rock	2.0	13.5	0.15
IN-5	Harding Rock to Bay Bridge	4.5	13.5	0.33
MN-1	Maneuvering: Bay Bridge to Oakland Dock (Outer Terminal)	-	-	1.33[4]
H-1	Hotelling Oakland: Waiting	-	-	1.00[5]
H-2	Hotelling Oakland: Discharging	-	-	24.00[5]
H-3	Hotelling: Oakland Waiting	-	-	1.00[5]
MN-2	Maneuvering: Oakland Dock (Outer Terminal) to Bay Bridge	-	-	0.75[4]
OB-1	Bay Bridge to Harding Rock	4.8	13.5	0.36
OB-2	Harding Rock to Golden Gate	1.8	13.5	0.13
OB-3	Golden Gate to Sea Buoy	8.9	13.5	0.66
OB-4	Sea Buoy to Pilot Departs	1.5	9.0	0.17
OB-5	Pilot Departs to PZ Outer Edge	6.8	15.75 / 14.5	0.43 / 0.47

Notes:

1. Segment distances from 2020 Port Oakland.
2. Vessel speed for each segment from 2020 Port Oakland. Speeds of segments IN-1 and OB-5 are the "cruise speeds" for the representative OGVs.
3. For segments with movement, the time is calculated.
4. Maneuvering time from 2020 Port Oakland.
5. Hotelling time from ERA.

The following table shows the load factor applied for the main and auxiliary engines at each segment as a fraction of 100% load. Unless otherwise specified, the main engine load factors were calculated using Stokes Law cubic relationship for speed and load (2020 Port Oakland)[1]. Unless otherwise specified, the auxiliary engine load factors are from ERA, who obtained the information from the OGV manufacturer data logs for transit to/from the San Francisco Bay. The listed values are averages of the vessels' auxiliary engines' load because each vessel has multiple auxiliary engines that operate under varying load capacities at each segment. The boilers are assumed to operate at 100% capacity.

Table A4. OGV Main & Auxiliary Engine Load Factors

[1] Load Factor = (Vessel Speed / Vessel Maximum Speed) ^3

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Segment ID	Tier 0 - HH Jackman		Tier 2 - CSL Tecumseh		Low-Load Adjustment Factors (LAF) – Main Engines Only[3]					
	Main Engine LF	Aux Engine LF	Main Engine LF	Aux Engine LF	HC (POC)	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$
IN-1	0.823	0.130[2]	0.823	0.130[2]	1.0	1.0	1.0	1.0	1.0	1.0
IN-2	0.153	0.313	0.197	0.197	1.36	1.32	1.32	1.06	1.11	1.11
IN-3	0.518	0.313	0.664	0.197	1.0	1.0	1.0	1.0	1.0	1.0
IN-4	0.518	0.470	0.664	0.167	1.0	1.0	1.0	1.0	1.0	1.0
IN-5	0.518	0.470	0.664	0.167	1.0	1.0	1.0	1.0	1.0	1.0
MN-1[1]	0.020	0.500	0.020	0.500	21.18	9.68	9.54	4.63	7.29	7.29
H-1	0.0	0.157	0.0	0.142	1.0	1.0	1.0	1.0	1.0	1.0
H-2	0.0	0.620	0.0	0.312	1.0	1.0	1.0	1.0	1.0	1.0
H-3	0.0	0.157	0.0	0.142	1.0	1.0	1.0	1.0	1.0	1.0
MN-2[1]	0.020	0.500	0.020	0.500	21.18	9.68	9.54	4.63	7.29	7.29
OB-1	0.518	0.470	0.664	0.164	1.0	1.0	1.0	1.0	1.0	1.0
OB-2	0.518	0.470	0.664	0.164	1.0	1.0	1.0	1.0	1.0	1.0
OB-3	0.518	0.313	0.664	0.189	1.0	1.0	1.0	1.0	1.0	1.0
OB-4	0.153	0.313	0.197	0.189	1.36	1.32	1.32	1.06	1.11	1.11
OB-5	0.823	0.130[2]	0.823	0.130[2]	1.0	1.0	1.0	1.0	1.0	1.0

Notes:

1. Maneuvering load factors for main and aux engines are from 2020 Port Oakland.
2. Aux engine load factors for IN-1 and OB-5 are from 2020 Port Oakland.
3. Low-Load Adjustment Factors applied only to main engine segments with load factors less than 20%.

Round-trip OGV emissions per delivery are the sum of the emissions from each segment. OGV emissions from each segment are equal to the sum of the emissions from the main engine (ME), auxiliary engines (AE), and boiler for each segment. Because the LLAFs apply only to the main engine, the formulas for the auxiliary engines and boilers are slightly different than for the main engines. Furthermore, the boilers are assumed to operate at maximum capacity.

$$\boldsymbol{ME\ Emissions}\left(\frac{\boldsymbol{lbs}}{\boldsymbol{segment}}\right) = Rated\ Engine\ Power\ (kW) * LF * time\ (hrs) * Emission\ Factor\ \left(\frac{g}{kW * hr}\right) * LLAF * \left(\frac{1\ lb}{453.6\ g}\right)$$

$$\boldsymbol{AE\ Emissions}\left(\frac{\boldsymbol{lbs}}{\boldsymbol{segment}}\right) = Rated\ Engine\ Power\ (kW) * LF * time\ (hrs) * Emission\ Factor\ \left(\frac{g}{kW * hr}\right) * \left(\frac{1\ lb}{453.6\ g}\right)$$

$$\boldsymbol{Boiler\ Emissions}\left(\frac{\boldsymbol{lbs}}{\boldsymbol{segment}}\right) = Rated\ Boiler\ Power\ (kW) * time\ (hrs) * Emission\ Factor\ \left(\frac{g}{kW * hr}\right) * \left(\frac{1\ lb}{453.6\ g}\right)$$

Table A5. OGV Emissions

Vessel Tier	Total OGV Emissions Per Delivery (lbs/delivery)						Deliveries per Year[1]	Annual OGV Emissions (tons/year)					
	POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$		POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$
Tier 0	113.6	201.9	71.8	2,408	31.6	29.1	**36**	2.045	3.635	1.292	43.339	0.569	0.524
Tier 2	96.0	167.5	58.5	1,843	26.0	24.0	**12**	0.576	1.005	0.351	11.059	0.156	0.144
TOTAL	**209.6**	**369.4**	**130.3**	**4,251**	**57.6**	**53.1**	**48**	**2.621**	**4.640**	**1.643**	**54.398**	**0.725**	**0.668**

Notes:

1. ERA will be required by permit condition to ensure that a minimum of 25% of annual OGV deliveries are made by OGVs with main engines rated at Tier 2 or better.

Cargo Carrier Emissions – Tugboats

Tugboats are commercial harbor craft (CHC) that will be used by the proposed ERA Oakland Terminal operation. "Assist Tugs" will be utilized to assist OGVs in maneuvering in, docking, and maneuvering out of the port. "Barge Tugs" will be used to tow barges of material to customer destinations around the San Francisco Bay. The basic equation for estimating emissions from a commercial harbor craft engine (CHC) is below (2007 CARB-CHC):

$$E = EF_0 \times F \times (1 + D \times \frac{A}{UL}) \times HP \times LF \times Hr$$

Where:

E is the amount of emissions of a pollutant (ROG, CO, NOx, or PM) emitted during one period; [7]
EF_0 is the model year, horsepower and engine use (propulsion or auxiliary) specific zero hour emission factor (when engine is new);
F is the fuel correction factor which accounts for emission reduction benefits from burning cleaner fuel;
D is the horsepower and pollutant specific engine deterioration factor, which is the percentage increase of emission factors at the end of the useful life of the engine;
A is the age of the engine when the emissions are estimated;
UL is the vessel type and engine use specific engine useful life;
HP is rated horsepower of the engine;
LF is the vessel type and engine use specific engine load factor;
Hr is the number of annual operating hours of the engine.

The following table summarizes the typical Assist-Tug route from Base to maneuvering the inbound OGV and back to Base, and vice versa for the outbound OGV. The distances and time assume the tug leaves from Base and returns to Base for every trip.

Table A6. Assist-Tug Route Segment Descriptions & Time

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Segment Description	Segment Distance (nautical miles)	Vessel Speed (knots)[3]	Segment Time (hours)[4]
Tugboat Base (Berth 9) to Meet OGV (Bay Bridge)	3.25	8	0.41
Maneuvering OGV into Oakland Dock (Berth 22)[1]	-	-	1.33
Oakland Dock (Berth 22) return to Tugboat Base (Berth 9)[2]	0.25	8	0.03
Tugboat Base (Berth 9) return to Oakland Dock (Berth 22)[2]	0.25	8	0.03
Maneuvering OGV out of Oakland Dock (Berth 22)[1]	-	-	0.75
Leave OGV (Bay Bridge) return to Tugboat Base (Berth 9)	3.25	8	0.41
Round Trip OGV Assist Time per Tugboat (Hr):			**3.0**

Notes:

1. No data for distance or speed of the maneuvering segments. Segment times assumed to be equal to OGV maneuvering segment times from Table A3 of this Appendix.
2. Berth 22 to Berth 9 distance estimated using Google Earth.
3. Average assist-tug transit trip speed is 8 knots (2020 Port Oakland).
4. Except for maneuvering, the segment times were calculated.

The following table provides the pertinent engine information for the Assist Tug chosen as a representative tugboat for the emission calculations. Unless otherwise specified, the data is from the 2020 Port Oakland report.

Table A7. Assist Tug Engine Information

Company - Tug Name	Model Year	Main Engine Power (HP)	Aux Engine Power (HP)	Main Engine Load Factor (LF)	Main Engine Age (yrs)	Effective Main Engine Age (A)[1]	Aux Engine Load Factor (LF)	Aux Engine Age (yrs)	Effective Aux Engine Age (A)[1]
AMNAV - Patricia Ann	2008	5,100	335	0.31	17	14	0.43	17	16

Notes:

1. Per 2021 CARB-CHC, the useful life (UL) of tugboat main and auxiliary engines is 14 and 16 years, respectively. UL is defined as the age when 50% of the engines retire in the fleet and engines continue to deteriorate until they reach their useful life. Since the Patricia Ann's engines are older than the "useful life", the effective age of each engine is assumed to be the respective UL as noted by 2021 CARB-CHC.

Three sets of barges, each with a respective tug or set of tugs, will be used to transport material from the Oakland Terminal at Berth 22 to its destination. The proposed routes, usage, and names of the barges and their tugs are summarized in the table below. A "round trip" is the distance to and from the destination, starting at the ERA Oakland terminal.

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Table A8. Barge Tug Route & Usage Information

Barge Destination	round-trip distance[2] (nm)	Avg Speed[3] (kn)	Time (Hr)	Trips/year	Barge Name	# of Tugs required	Tugboat Name
San Francisco - Pier 92	13.0	8	1.63	36	Peter Lind	2	The Orion + Another[4]
Petaluma	60.9	8	7.61	10	Shamrock Barges	4	Sarah Reed[5]
Various[1]	13.0	8	1.63	33	Westar Rock Barge #2	1	Fat Cat

Notes:

1. Destination will be either SF Pier 92 or Treasure Island. The longer trip (SF Pier 92) will be used for emission calculations.
2. Distance verified using Google Earth.
3. Average tug transit speed (2020 Port Oakland).
4. The Peter Lind barge requires two tugboats, The second tugboat will be assumed to be identical to "The Orion" for the emission calculations.
5. There are four (4) Shamrock Barges and only one can be towed at a time. The Sarah Reed tugboat will often make multiple trips to complete each shipment, although some trips may be completed by Tug Lassen. Emission calculations will assume all trips to Petaluma will be completed by the Sarah Reed.

Additional information and specifications of the barge tug engines are provided in the following table.

Table A9. Barge Tug Engine Information

Barge Tug Name	Engine Type	Total Power Rating[1] (HP)	# of engines	Power Rating per Engine (hp)	Model Year[1]	Effective Engine Age[3] (A)	Load Factor[4] (LF)
The Orion	Main	3,046	2	1,523	2007	14	0.33
	Auxiliary	266	2	133	no data[2]	16	0.37
Sarah Reed	Main	1,700	2	850	2008	14	0.33
	Auxiliary	132	1	132	2008	16	0.37
Fat Cat	Main	2,028	2	1,014	2005	14	0.33
	Auxiliary	74	1	74	no data[2]	16	0.37

Notes:

1. Data from the IHS Fairplay database.
2. No information available – assume the same model year as the associated main engine.
3. See Note 1 on Table A7.
4. 2021 CARB-CHC.

The "Tug Lassen", which may occasionally be used in place of the "Sarah Reed", has main engines with higher total power rating (2,400 hp) than the Sarah Reed. However, the Sarah Reed has older engines (model year 2008 vs. 2017) that have significantly higher emission factors for NOx and PM (per 2007 CARB-CHC) and the emissions from the Sarah Reed are more affected by deterioration factors than Tug Lassen. To conservatively estimate emissions for the Shamrock Petaluma trips, all trips will be assumed to be made by the Sarah Reed.

Additional parameters specific to power class and model years of the tugboat engines (both Assist Tugs & Barge Tugs) are summarized below.

Table A10. CHC Fuel Correction Factors, Deterioration Factors, and Zero-Hour Emission Factors

(F) - Fuel Correction Factors by Pollutant & Power Class/Model Year[1]						
Power Class/Model Year	**HC (POC)**	**CO**	**SO_2**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
51 < HP < 100, Model Year 1998-2010	0.72	1	1	0.948	0.8	0.8
101 < HP < 175, Model Year 1997-2010	0.72	1	1	0.948	0.8	0.8
HP > 176, Model Year 1996-2010	0.72	1	1	0.948	0.8	0.8
(D) - Deterioration Factors by Pollutant & Power Class[1]						
Power Class	**HC (POC)**	**CO**	**SO_2**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
51 < HP < 250	0.28	0.16	0	0.14	0.44	0.44
HP > 251	0.44	0.25	0	0.21	0.67	0.67
(EF_0) - Zero-Hour Tugboat Main Engine Emission Factors (g/bhp-hr)[2,5]						
Power Class/Model Year Range	**ROG (POC)**	**CO**	**SO_2 [3]**	**NOx**	**PM_{10}**	**$PM_{2.5}$ [4]**
751 < HP < 1900, Model Year 2000-2006	0.68	1.97	0.0055	7.31	0.36	0.344
751 < HP < 1900, Model Year 2007-2011	0.68	3.73	0.0055	5.53	0.20	0.191
3301 < HP < 5000, Model Year 2007-2013	0.68	3.73	0.0055	5.53	0.20	0.191
(EF_0) - Zero-Hour Tugboat Auxiliary Engine Emission Factors (g/bhp-hr)[2]						
Power Class/Model Year Range	**ROG (POC)**	**CO**	**SO_2 [3]**	**NOx**	**PM_{10}**	**$PM_{2.5}$ [4]**
51 < HP < 120, Model Year 2005-2008	1.18	3.73	0.0055	5.32	0.30	0.287
121 < HP < 175, Model Year 2004-2012	0.81	3.73	0.0055	5.10	0.22	0.210
251 < HP < 500, Model Year 2004-2013	0.81	3.73	0.0055	5.10	0.15	0.143

Notes:

1. 2007 CARB-CHC
2. Emission factors for POC, CO, NOx, and PM_{10} are from 2007 CARB-CHC.
3. SO_2 emission factor calculated based on fuel sulfur content of 15 ppm.
4. $PM_{2.5}$ is 95.6% of PM_{10} (2021 CARB-CHC)
5. Power class of 3301 < HP < 5000 is the closest power range with emission factors available for the Patricia Ann tugboat with a main engine of 5,100 hp.

The pollutant emissions from tugboat main and auxiliary engines per tugboat trip are calculated using the above parameters and the equation described earlier in this section.

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Total Assist-Tug emissions per trip are equal to the sum of the emissions per trip from the main and auxiliary engines. OGVs delivering material to the ERA Oakland Terminal will require up to two (2) Assist-Tugs for each round trip. With up to 48 OGV deliveries per year, there could be up to 96 Assist-Tug trips per year. The table below summarizes the emissions from Assist-Tugs.

Table A11. Assist-Tug Emissions

Total Assist-Tug Emissions Per Tug Round-Trip (lbs/trip)						Tug Trips per year	Annual Assist-Tug Emissions (tons/year)					
POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$		POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$
8.17	53.2	0.063	71.9	2.99	2.85	**96**	**0.392**	**2.554**	**0.003**	**3.451**	**0.143**	**0.137**

Total Barge Tug emissions per trip are equal to the sum of emissions per trip from the main and auxiliary engines. The number of individual barge tug trips to each destination are found by multiplying the "trips/year" by the "# of tugs required" from Table A8. Because the "Fat Cat" and "The Orion" could both be towing barges to the same location (SF Pier 92), the individual barge tup trips to "SF Pier 92" and "Various" will be combined and the higher emitting tug for each pollutant will be used to calculate the emissions. The following table shows the total annual individual barge tug trips, the emissions per trip, and the annual barge tug emission rates.

Table A12. Barge Tug Emissions

Destination	Individual Barge Tug Emissions Per Round-Trip (lbs/trip)						Tug trips per year	Annual Barge Tug Emissions (tons/year)					
	POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$		POC	CO	SO_2	NOx	PM_{10}	$PM_{2.5}$
SF Pier 92 (or Various)	2.81	18.4	0.022	24.9	1.25	1.19	**105**	0.148	0.965	0.001	1.306	0.065	0.063
Petaluma	7.25	47.4	0.056	64.2	2.72	2.60	**40**	0.145	0.948	0.001	1.284	0.054	0.052
							TOTAL:	**0.293**	**1.913**	**0.002**	**2.590**	**0.120**	**0.115**

Appendix B
BACT/TBACT Analysis & Determination

See the "Best Available Control Technology" and "Best Available Control Technology for Toxics" sections of this evaluation for additional background information.

Control Technology & Emissions Standards Review

Emission Category 1: Transfer Points from Aggregate Handling (S-1, S-2, part of S-3, & S-4 through S-7)

The Bay Area Air District's and other California air districts' BACT determinations for PM emissions from aggregate handling and related operations are summarized in Table B1. Federal, state, and regional clearinghouses and permitting actions contained determinations for controlling PM emissions from aggregate handling and related operations are summarized in Table B2.

Table B1. California Air Districts' BACT Determinations for Aggregate Handling

Determination Info & Process Type	BACT 1 (Technologically Feasible)	BACT 2 (Achieved in Practice)
Bay Area Air District BACT Workbook – Section 11 Rock & Aggregate Processing in Crushing and Grinding Operation	Enclosure of all conveyors and material transfer points; and vent to baghouse with maximum exhaust concentration of 0.01 gr/dscf	Water spray of transfer points and conveyors
Bay Area Air District BACT Workbook – Section 11 Concrete Batch Plants (≥5 yd^3/batch)	Wind screens & water spray with chemical suppressants for aggregate handling	Water spray for aggregate handling
Santa Barbara APCD BACT Guideline – Section 5.1 Concrete Batch Plants	ND	Water spray at all sand/aggregate transfer points; and hopper loading sufficiently wetted to prevent visible emissions (minimum moisture contents of 4% for sand and 1% for rock)
South Coast AQMD Minor Source BACT Guidelines Concrete Batch Plants (≥5 yd^3/batch)	ND	Adequate moisture in aggregate
San Diego County APCD BACT Guidance – Concrete Batch Plants	ND	Water spray system for sand/aggregate transfer points; and opacity limited to 20%
San Joaquin Valley Unified APCD BACT Guideline – Section 6.1.2 Sand/Gravel/Aggregate Processing	ND	Water sprays of conveyors/transfer points such that visible emissions do not exceed 7% opacity
San Joaquin Valley Unified APCD BACT Guideline – Section 6.2.2 Concrete Batch Plants	ND	Water spray of all sand/aggregate transfer points such that opacity cannot exceed 5%
Sacramento Metropolitan AQMD BACT Determination #355 Aggregate Processing (>150 tons/hr)	ND	Water spray as necessary such that: • Conveyors & transfer points limited to most stringent opacity limit in 40 CFR 60 Subpart OOO (7% opacity) • Feed hopper loading & stockpile loading limited to 20% opacity

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Table B2. Federal & Regional Permitting Actions for Aggregate Handling

Agency & Facility Details	Source Type & Throughput Details	Control Technology/Control Standards
Bay Area Air District AN 15065 (December 2006), AN 20573 (Sept. 2009) Eagle Rock Aggregate, Inc., Richmond, CA Aggregate Receiving & Storage Facility	Aggregate receiving, transfer, and loadout building • 1,500,000 tons/year	• Water spray at transfer points • Outdoor conveyors covered as much as feasible
Mojave Desert AQMD Permit #T004229 (July 2002) Crawford Associates, Blythe, CA Aggregate Processing Plant	Aggregate Receiving & Storage System (including Receiving Hopper, Belt Conveyors, Radial Stacker) • No throughput data	• Aggregate charged and in process shall be kept sufficiently moist to prevent dust emissions
South Coast AQMD AN 626369 (May 2021), AN 607840 (October 2018), AN 596021 (July 2017), AN 521668 (November 2011), AN 399331 (May 2010), AN 233351 (September 1995), AN 135864 (January 1989) Calmat Company, Sun Valley, CA Aggregate Processing Plant	Aggregate receiving, transfer, & stacking • 2,000 tons/hr • 48,000 tons/day • 840,000-1,400,000 tons/month	• Aggregate charged and in process shall be kept sufficiently moist to prevent excessive dust emissions (limited to 20% opacity, per SCAQMD Rule 1157)
EPA RBLC LA-0209 (August 2009) Big River Industries, Pointe Coupee County, LA Aggregate Production/Processing Plant	Truck/Rail Loading & Conveyor Systems • 40 tons/hr	• Water sprays and/or partial enclosures
EPA RBLC ID NV-0032 (December 2001) United Rock Products, Clark County, NV Sand & Gravel Processing Plant	Sand/Gravel Loaders & Conveyors • No throughput data	• Wet suppression
EPA RBLC ID NV-0045 Permit #372 (March 2008) Aggregate Industries, Sloan Quarry, Las Vegas, NV Sand/Gravel Mining & Processing Plant	Aggregate Stacking #1 (Unit A12) • 4,200 tons/hr • 5,000,000 tons/year Aggregate Stacking #2 (Unit A040, enclosed with crushers & screens) • 3,700 tons/hr • 5,000,000 tons/year Conveyors, transfer points	Aggregate Stacking #1: • Maintain 4.5% moisture content in materials with diameter < 0.25" (water spray) • Opacity limit of 20% Aggregate Stacking #2: • 4% moisture in materials with diameter < 0.25" • Vent to baghouse with 99.5% control efficiency Conveyors, transfer points: • Water spray to prevent exceeding opacity limit of 7% (based on five 6-minute averages)
EPA RBLC ID VA-0123 (December 2001) Vulcan Materials, Virginia Stone Crushing Facility	Material Transfer, Conveyor • 2,409,750 tons/year	• Minimum 3% moisture in rock • Opacity limit of 10%
EPA RBLC ID OK-0018 December 2001 Mid-Continent Materials, Inc, Tulsa, OK Rock Processing Facility	Conveyors & Truck Loading • 355 tons/hr • 625,000 tons/year	• Water spray with surfactant

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Emission Category 2: Wind Erosion from Aggregate Storage Piles (part of S-3)

The Bay Area Air District's and other California air districts' BACT determinations for PM emissions from aggregate storage piles and related operations are summarized in Table B3. Federal, state, and regional clearinghouses and permitting actions contained determinations for controlling PM emissions from aggregate storage piles and related operations are summarized in Table B4.

Table B3. California Air Districts' BACT Determinations for Aggregate Storage Piles

Determination Info & Process Type	BACT 1 (Technologically Feasible)	BACT 2 (Achieved in Practice)
Bay Area Air District BACT Workbook – Section 11 Rock & Aggregate Processing in Crushing and Grinding Operation	Water spray with chemical suppressants of storage piles	Water spray of storage piles
Bay Area Air District BACT Workbook – Section 11 Solid Material Storage – Open in Crushing and Grinding Operation	Enclosed storage	Water spray with chemical suppressants
Bay Area Air District BACT Workbook – Section 11 Concrete Batch Plants (≥5 yd^3/batch)	Wind screens & water spray with chemical suppressants for storage piles	Water spray for storage piles
Santa Barbara APCD BACT Guideline – Section 5.1 Concrete Batch Plants	Enclosed sand/aggregate storage	Outdoor sand & aggregate storage piles adequately wetted to prevent visible emissions; and minimum moisture content of 4% for sand and 1% for rock
South Coast AQMD Minor Source BACT Guidelines Bulk Solid Material Storage	ND	Open Storage – water with chemical additives
San Diego County APCD BACT Guidance – Concrete Batch Plants	ND	Sand/aggregate storage piles adequately wet to maintain minimum moisture content of 4% by weight; and opacity limited to 20%
San Joaquin Valley Unified APCD BACT Guideline – Section 6.1.2 Sand/Gravel/Aggregate Processing	Water spray with chemical suppressant	Water spray such that visible emissions don't exceed 20% opacity
San Joaquin Valley Unified APCD BACT Guideline – Section 6.2.2 Concrete Batch Plants	Sand/aggregate storage – enclosed storage vented to control device with 99% control efficiency	Outdoor sand/aggregate storage piles adequately wetted a) to prevent visible emissions greater than 5% opacity; or b) minimum moisture content of 2% for aggregate and 4% for sand
Sacramento Metropolitan AQMD BACT Determination #355 Aggregate Processing (>150 tons/hr)	ND	Water spray such that visible emissions don't exceed 20% opacity

Table B4. Federal & Regional Permitting Actions for Aggregate Storage Piles

Agency & Facility Details	Source Type & Throughput Details	Control Technology/Control Standards
Bay Area Air District AN 15065 (December 2006), AN 20573 (Sept. 2009) Eagle Rock Aggregate, Inc., Richmond, CA Aggregate Receiving & Storage Facility	Aggregate storage building • 1,500,000 tons/year • Storage building footprint: 54,500 ft^2	• Water spray
South Coast AQMD AN 626369 (May 2021), AN 607840 (October 2018), AN 596021 (July 2017), AN 521668 (November 2011), AN 399331 (May 2010), AN 233351 (September 1995), AN 135864 (January 1989) Calmat Company, Sun Valley, CA Aggregate Processing Plant	Aggregate storage • 2,000 tons/hr • 48,000 tons/day • 840,000-1,400,000 tons/month	• Aggregate charged and in process shall be kept sufficiently moist to prevent excessive dust emissions (limited to 20% opacity, per SCAQMD Rule 1157)
EPA RBLC ID NV-0045 Permit #372 (March 2008) Aggregate Industries, Sloan Quarry, Las Vegas, NV Sand/Gravel Mining & Processing	Storage piles • No throughput data	• Water spray to prevent exceeding opacity limit of 20%
EPA RBLC ID OK-0018 (December 2001) Mid-Continent Materials, Inc, Tulsa, OK Rock Processing Facility	Storage Piles • 355 tons/hr • 625,000 tons/year	• Water spray with surfactant
EPA RBLC ID VA-0123 (December 2001) Vulcan Materials, Virginia Stone Crushing Facility	Storage, Open Piles • 2,409,750 tons/year	• Wet suppression • Opacity limited to 10%

Aggregate Handling & Storage BACT Discussion: The BACT discussion for Aggregate Handling and Aggregate Storage Piles will be done together because of their similar emission streams, similar available control technologies, and the ability for both categories to be controlled by the same technology/device.

Water spray with surfactants (chemical suppressant) was considered for this project, however surfactants/chemical suppressants are "air-entraining" chemicals and their presence in construction aggregates impacts air content in concrete, which in turn affects the performance of the concrete under certain conditions. Air content in concrete can be useful for improving its thermal resistance, however increased air content also results in decreased strength. The addition of these chemicals to the material stored at this site would result in ERA's primary customers (concrete batching plants) receiving materials with unknown quantities of air-entraining chemicals. For this reason, the addition of surfactants/chemical suppressants to the water spray was deemed infeasible for this project and therefore, will not be considered BACT.

The aggregate handling source (Aggregate Stacking #2) at Aggregate Industries in Las Vegas, NV (RBLC ID NV-0045) is vented to a baghouse, however the transfer points at that operation are located in an area with rock crushers and screens. Since the proposed aggregate handling sources are not associated with crushers/screens, the control used for Aggregate Stacking #2 at Aggregate Industries was not deemed to be achieved in practice under similar conditions and will therefore be considered a candidate for BACT 1.

Venting dust emissions to a baghouse would also require the source to be located in a fully enclosed structure. ERA's existing facility in Richmond, CA has its transfer and storage operations located inside a building that also acts as an enclosed structure. It should be noted that the building is included as part of the facility's operations and enclosing their sources was not proposed as an emission control, nor was it required by BACT or any other Bay Area Air District (Air District) regulation. The sources' location in an enclosed building was not considered in the Air District's emission calculations and was not made required by permit conditions. Although, because it can be reasonably assumed that the structure mitigates dust emissions, it is included in this analysis to demonstrate that enclosure may be technologically feasible and will therefore be considered a candidate for BACT 1.

ERA's existing facility in Richmond, CA also uses conveyor belts for aggregate transfer in the same way that they are proposing for the ERA Oakland Terminal. At the Richmond facility, the top half of all the conveyors located outside are completely or almost completely covered, leaving just enough space as necessary for maintenance access or operational constraints. Although the footprint and throughput of the Richmond facility is much smaller than the proposed Oakland Terminal, ERA confirmed that the conveyor belts that will be used at the proposed operation will be designed to operate at a comparable throughput rate to what is in use at the Richmond facility. The conveyor covers were not proposed as an emission control at the Richmond facility, they were not required by BACT or any other Air District regulation, they were not considered in the Air District's emission calculations, nor were they required by permit conditions. However, it can reasonably be assumed that the conveyor covers may mitigate dust emissions. And since the proposed conveyors will be located outside and have a comparable throughput rate to what is in use at the Richmond facility, the Air District has determined that they will be considered achieved-in-practice, and therefore required as BACT 2.

Some of the determinations in Tables B1 through B4 list specific moisture content limits for materials. A condition of the Lawsuit Settlement Agreement[1] concerning this project states that ERA is required to maintain moisture content of fine aggregates (sand) and coarse aggregates (gravel) at target ranges of 5-8% and 1-2%, respectively. The moisture content testing results will be retained on site and made available to the Port of Oakland, the West Oakland Environmental Indicators Project (WOEIP), or the Air District upon request. Since these moisture content limits were developed specifically for the materials of this proposed project and the Air District doesn't currently have set standard testing procedures for moisture content, the Air District concurs that they are appropriate for these proposed materials.

Comparing the determinations listed in Tables B1 through B4 and from the discussion above, BACT 1 and BACT 2 for Aggregate Handling & Storage Piles are summarized below:

Aggregate Handling & Storage Piles BACT 1: A cost-effectiveness analysis is necessary for the following potentially technologically feasible controls:

- Wind screens for handling and storage operations
- Enclosed handling and storage operations vented to control device with 99.5% control efficiency

[1] *Lawsuit Settlement Agreement made among the West Oakland Environmental Indicators Project, the People of the State of California, the City/Port of Oakland, and Eagle Rock Aggregates, Inc. Effective June 29, 2023.*

Aggregate Handling & Storage Piles BACT 2: The following controls are the most stringent that are achieved in practice:

- Water spray of storage piles and transfer points
- Partial enclosures at transfer points
- Conveyor belt covers
- Maintain appropriate moisture content to prevent visible emissions exceeding 5% opacity

The cost-effectiveness analysis for the BACT 1 controls will be discussed later in this Appendix.

Water spray, partial enclosures at transfer points, conveyor belt covers and maintaining appropriate moisture content in aggregate to prevent visible emissions exceeding 5% opacity are achieved in practice and are considered BACT 2 for aggregate handling. ERA's proposed design includes water sprays at all transfer points as well as dust chutes on hopper-to-conveyor and conveyor-to-conveyor transfer points. The dust chutes act as a partial enclosure and provide a buffer zone for dust to settle before it can be emitted to the atmosphere. Similarly, covering the conveyor belts will provide a buffer to prevent dust from being emitted while the material is being conveyed. The permit conditions will include a requirement of conveyor covers for all feasible portions, with exceptions only for sections necessary for maintenance access, safety, or normal operations. Maintaining appropriate material moisture to prevent visible emissions exceeding 5% opacity will also be reflected in the permit conditions.

Emission Category 3: Site Roads

The Bay Area Air District's and other California air districts' BACT determinations for PM emissions from site roads at aggregate handling/storage facilities are summarized in Table B5. Federal, state, and regional clearinghouses and permitting actions contained determinations for controlling PM emissions from site roads at aggregate handling/storage facilities are summarized in Table B6.

Table B5. California Air Districts' BACT Determinations for Site Roads

Determination Info & Process Type	BACT 1 (Technologically Feasible)	BACT 2 (Achieved in Practice)
Bay Area Air District BACT Workbook – Section 11 Rock & Aggregate Processing	Water spray with chemical suppressants of site road surfaces	Water spray of site road surfaces
Bay Area Air District BACT Workbook – Section 11 Concrete Batch Plants (≥5 yd^3/batch)	Paving of site road surfaces	Water spray of site road surfaces

Table B6. Federal & Regional Permitting Actions for Site Roads

Agency & Facility Details	Source Type & Throughput Details	Control Technology/Control Standards
EPA RBLC ID MO-0048 (May 2005) Lafarge Corporation, Jackson County, MO Portland Cement Manufacturing & Aggregate Plant	Paved Haul Roads • 61,000 VMT/year	• Water flushing followed by vacuum sweeping
EPA RBLC ID NV-0045 Clark County DAQ Permit #372 (March 2008) Aggregate Industries, Sloan Quarry, Las Vegas, NV Sand/Gravel Mining & Processing	Paved Roads • No throughput data	• Sweep and/or rinse site paved roads as necessary to not exceed 20% opacity
EPA RBLC ID OK-0018 (December 2001) Mid-Continent Materials, Inc, Tulsa, OK Rock Processing Facility	Site Roads • No throughput data	• Paving required

In addition the determinations shown above, South Coast AQMD Rule 1157 (PM10 Emission Reductions from Aggregate & Related Operations) states that a facility shall perform regular street sweeping with a PM10-efficient street sweeper (Rule 1186-certified sweeper).

Site Roads BACT/TBACT Discussion: Since TBACT is triggered for the site roads of this project, the cost of controls is not considered. Only feasibility and effectiveness are considered.

Water spray with chemical suppressants will not be considered TBACT because chemical suppressants that control dust from roadways are designed to work on unpaved roads. The combination of paving roads, water flushing, and regular street sweeping are more effective at controlling PM emissions from site roads.

Per Air District Regulation 6-1-307.1, the active operations from a regulated bulk material site cannot result in visible emissions that exceed 10% opacity, which is more stringent than the opacity limit imposed on paved roads at Aggregate Industries in Las Vegas, NV (RBLC ID NV-0045).

Comparing the determinations listed in Tables B5 and B6 and from the discussion above, TBACT for Site Roads is summarized below:

Site Roads TBACT: The following controls are the most effective controls that are feasible for this proposed operation:

- Paving of roads
- Water flushing of paved roads
- Street sweeping of paved roads with a "PM10-efficient" street sweeper
- Limiting visible emissions to 10% opacity

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Cost-Effectiveness Analysis

As discussed earlier in this Appendix, the following control technologies have been found to be potentially technologically feasible for controlling PM emissions from the proposed sources of this operation (S-1 through S-7):

- Enclosed handling and storage operations vented to control device with 99.5% control efficiency
- Wind screens for handling and storage operations

For the purposes of this analysis, PM_{10} will be referred to as PM. The general methods used for estimating cost-effectiveness are from the Air District's BACT Policy & Implementation Procedure[2]. Per this document, the maximum annualized cost for PM_{10} is $5,300 per ton of emissions reduced per year. Typically, cost-effectiveness analyses are performed on a source-by-source basis. However, since the proposed group of sources (S-1 through S-7) all emit PM and are configured in a manner that they could share the same control device, the cost-effectiveness analysis will be performed using their combined emissions. The combined uncontrolled PM emission rates of S-1 through S-7 is 38.477 tons/year (TPY)[3].

Enclosure Venting to Control Device: To enclose the PM emitting sources of this operation a building would need to cover almost the entirety of the 18-acre site. The applicant provided cost data for a structure that would cover approximately 14 acres, with dimensions approximately 1,300 ft long and 475 ft wide (617,500 ft^2). The structure would also need a vertical clearance of 50 ft and horizontal clear span framing to accommodate the material storage and transfer equipment. According to the Geotechnical Conditions Report prepared for this project (Appendix E of the FSEIR), the site is expected to settle due to the weight of stored material and equipment and the settlement would not likely be uniform. Therefore, a building would require the design and construction of a foundation system to negate the effects of site settlement to prevent compromising the integrity of the structure.

Wind Screens: Two scenarios of wind screen designs were explored for this project. One option included screens around the perimeter of the site except for the narrow west boundary, which borders the San Francisco Bay, and the other included screens on two sides of the stockpiles only. The wind screen vendor noted that local wind data indicated the latter option would result in a "funneling" effect that would accelerate wind speeds and likely increase wind erosion and dust emissions. Therefore, only the first option was considered feasible. The fence would include 3,300 linear feet of wind screen that would reach 50 feet high to properly protect the maximum stockpile height.

Note that partial enclosure of each stockpile is similar to the second option but with a top cover. However, it will encounter the same "funneling" effect described above.

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[2] *Bay Area Air District BACT Policy & Implementation Procedure: https://www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policy-and-implementation-procedure.pdf?rev=0b0b6987888814294b8f5e5ac87af9762&sc_lang=en*

[3] *Uncontrolled emissions for open transfer points were calculated without the 70% abatement factor of water spray. Uncontrolled emissions for the chuted transfer points were calculated using the uncontrolled "Conveyor Transfer Point" emission factor for PM10 in AP-42 Ch. 11.19.2, Table 11.19.2-2.*

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Cost data from vendor quotes obtained by ERA and methodologies laid out in the Air District's BACT Policy & Implementation Procedure were used to estimate the cost-effectiveness of the two potentially technologically feasible control options. The summary of this analysis is presented in the following Table B7.

Table B7. Cost-Effectiveness Analysis Summary

Control Type:	**Enclosure Structure**	**Wind Screen**
Total Capital Cost (TCC) =	$6,209,084	$6,025,000
Useful Life (n) =	30 years	30 years
Interest Rate (i) =	7.00%	7.00%
Capital Recovery Factor (CRF) =	8.06%	8.06%
Annualized Cost =	$500,368/year	$485,533/year
Annual PM Emissions Reduced =	38.477 TPY	38.477 TPY
Cost-Effectiveness =	$13,005 per TPY PM removed	$12,619 per TPY PM removed
Notes:	• TCC includes the cost of the building supply and installation for a 102,850 ft^2 structure. At the same rate of $60.37/$ft^2$, the building supply/installation of a 617,500 ft^2 structure would cost more than $37,000,000. • TCC **excludes** the cost of foundations, piling, doors, dust collection, lighting, baghouse, and indirect costs (taxes, engineering, permits, etc.) • Interest rate calculated per Air District policy using 6-month period from March 2024 to September 2024 • Annualized cost = TCC * CRF • Annualized cost **excludes** labor, maintenance, utilities, and indirect costs (overhead, insurance, administrative, etc.) • Emission reduction assumes 100% control efficiency of all emissions except for road dust.	• TCC includes the cost of building supply, installation, and engineering for 3,300 ft long and 50 ft tall wind screen • TCC **excludes** taxes • Interest rate calculated per Air District policy using 6-month period from March 2024 to September 2024 • Annualized cost = TCC * CRF • Annualized cost **excludes** labor, maintenance, and indirect costs (overhead, insurance, administrative, etc.) • Emission reduction assumes 100% control efficiency for all emissions except for road dust.

As shown above, the annualized costs of an enclosed structure or a wind screen are both more than double the Air District's maximum cost threshold for PM of $5,300 per TPY removed. Therefore, the potentially technologically feasible (BACT 1) control options cannot be considered BACT for the proposed Aggregate Handling & Storage Pile operations (S-1 through S-7).

Both the costs and the mitigation estimates shown above are highly conservative and are presented only to demonstrate that these technologies do not meet the Air District's cost-effectiveness threshold. The "Notes" section of Table B7 shows that, for both technologies, several additional costs were not included in the analysis and a very conservative emission control efficiency of 100% was assumed. Actual in-practice PM control efficiency from a fully enclosed aggregate storage/transfer operation that vents to a baghouse is undetermined, but it could reasonably be assumed that it would be significantly more effective than the 70% control efficiency that was assumed in this evaluation from water spray alone. For wind screens, actual in-

practice PM control efficiency can vary depending on several site-specific factors and variables, but according to a 2018 Staff Report on Particulate Matter prepared by the Bay Area Air District's Rules Division, the use of wind screens alone at fugitive dust sources are estimated to be between 70%-85% effective. And including the use of water spray with wind screens can potentially increase effectiveness to more than 90%. Because, in the Air District's understanding, the wind screens here could feasibly be placed only on the east, north, and south sides of the operation—and not on the west side that is generally upwind—these estimates may not be applicable. A more refined estimation of the technologies' emission control efficiencies would result in the analysis performed using an annual reduction of PM emissions less than 38.477 TPY, which would in turn show a cost-per-tpy-PM-removed that is even higher than what was presented above.

BACT/TBACT Determination

Aggregate Handling & Storage Piles: Because the BACT 1 control options are not cost-effective, BACT 2 controls are considered BACT for this operation. These controls are summarized below:

- Water spray of storage piles and transfer points
- Partial enclosures at transfer points
- Conveyor belt covers at all feasible sections
- Maintain appropriate moisture content to prevent visible emissions exceeding 5% opacity

Site Roads: The cost of controls for site roads was not considered because the roads trigger TBACT. The TBACT determination for Site Roads is summarized below:

- Paving of roads
- Water flushing of paved roads
- Street sweeping of paved roads with a "PM10-efficient" street sweeper
- Limiting visible emissions to 10% opacity

Appendix C
CEQA Findings, Supporting Facts, and Statement of Overriding Considerations

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BAY AREA AIR DISTRICT
CEQA FINDINGS, SUPPORTING FACTS, AND
STATEMENT OF OVERRIDING CONSIDERATIONS
FOR EAGLE ROCK AGGREGATES OAKLAND TERMINAL PROJECT

The Port of Oakland (Port) acted as Lead Agency under the California Environmental Quality Act (CEQA) for the Eagle Rock Aggregates Oakland Terminal Project, CEQA State Clearinghouse Number 2001082058 (Project). As a responsible agency under CEQA, the Bay Area Air District (Air District) participated in the Environmental Impact Report process and has closely reviewed and relies on the Port's Final Supplemental Environmental Impact Report. Eagle Rock Aggregates has submitted Application #30884 to the Air District for Authorities to Construct/Permits to Operate the Project.

PROJECT DESCRIPTION

Eagle Rock Aggregates, Inc. (ERA) proposes to construct and operate the ERA Oakland Terminal, a marine terminal at the Port that would import, store, and distribute bulk construction aggregates (i.e., sand and gravel). The proposed project is located at the Port's Outer Harbor Terminal within the Oakland Outer Harbor along the San Francisco Bay.

The plant would utilize Berth 22 for vessel and barge operations and approximately 18 acres of Berth 20, 21, and 22 backlands (land directly adjacent to a vessel berth) for stockpiling and distribution of construction aggregates. The project site is approximately 18 acres in size and is generally bounded by the Outer Harbor to the north and west, 14th Street and the Outer Harbor Terminal to the south, and Maritime Street to the east.

Once operational, ERA will transport sand and aggregate from British Columbia, Canada via ocean-going vessel (OGV). Material will be offloaded from OGVs to the Oakland Terminal via a self-discharging mechanism in each vessel and series of onshore conveyors. ERA expects up to 48 OGV calls per year and a total material throughput of up to 2,500,000 tons per year (TPY). Material offloaded onto the Oakland Terminal will be distributed to destination concrete ready-mix plants via trucks and barges. Material will be loaded into trucks via front-end loader and onto barges via a conveyor system.

The following timeline illustrates the Project's approval and CEQA process with the Port from preparation of the initial EIR to the present:

- July 31, 2002 – The City of Oakland (City) certified the 2002 Oakland Army Base Area Redevelopment Plan Environmental Impact Report (OAB EIR) and approved findings, a mitigation monitoring and reporting program (OAB MMRP), and a statement of overriding consideration in compliance with CEQA.
- September 17, 2002 – The Board of Port Commissioners adopted findings, mitigation measures, the OAB MMRP, and a statement of overriding considerations for the portion of the OAB Area Redevelopment Plan that would be carried out on Port property, in reliance on the City's 2002 OAB EIR (Resolution No. 02317)
- Since 2002 – The City and Port have prepared multiple addenda to the 2002 OAB EIR. These include the following four addenda prepared by or with the involvement of the Port:
    - 2006 Maritime Street Addendum analyzing the impacts of retaining Maritime Street in its existing location rather than relocating it to the east as originally analyzed in the 2002 OAB EIR;
    - 2012 Oakland Army Base Addendum analyzing the impacts of several Redevelopment Plan changes, focused primarily on facilities in the City's Gateway Area;
    - 2015 Cool Port Addendum analyzing the impacts of a temperature-controlled warehouse and maritime support and logistics facility designed to increase use of the Port's infrastructure network to import and export perishable goods; and

  - 2019 7th Street Grade Separation Addendum analyzing updated plans for the 7th Street Grade Separation element of the OAB Area Redevelopment Plan.
  - Together, the 2002 OAB EIR, the 2006 Maritime Street Addendum, the 2012 Oakland Army Base Addendum, the 2015 Cool Port Addendum, and the 2019 7th Street Grade Separation Addendum are referred to as the "2002 EIR as Addended."
- 2018 – ERA approached the Port with a request for a Non-Exclusive Preferential Assignment Agreement ("NEPAA" or "lease") to construct and operate a bulk sand and aggregate marine terminal comprising approximately 18 acres of land and 3 acres of water at Berths 20-22.
- August 22, 2019 – The Port issued a Notice of Preparation of a Draft Supplemental EIR for the proposed project and conducted a scoping period.
- November 6, 2020 – The Port issued a Notice of Availability of the Draft Supplemental EIR and notice of two public meetings.
- December 7, 2020 and January 13, 2021 – Port staff met with the Air District staff to discuss air quality impacts, emissions reduction measures, and potential permit requirements.
- January 8, 2021 – Air District staff submitted comments on the Draft Supplemental EIR.
- September 17, 2021 – The Port provided updates to the Air District regarding the Proposed Project description in response to comments received on the Draft SEIR.
- November 24, 2021 – The Port posted the Final SEIR on the Port's website.
- December 16, 2021 – Air District staff submitted comments on the Final SEIR, and the Board of Port Commissioners certified the Final SEIR and adopted CEQA findings, a mitigation monitoring and reporting program, and a statement of overriding consideration for the Project.
- February 24, 2022 – The Port approved the Project.
- March 24, 2022 – West Oakland Environmental Indicators Project filed a Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief, Alameda County Superior Court, Case No. 22CV008905, alleging that the Port had approved the Project in violation of CEQA.
- August 4, 2022 – The People of the State of California filed a Petition for Writ of Mandate in Intervention for Declaratory and Injunctive Relief in the above-mentioned litigation, also alleging that the Port had approved the Project in violation of CEQA.
- September 28, 2023 – The parties settled the above-mentioned litigation. The settlement allowed the Project to move forward but imposed additional mitigation on the Project.
- August 8, 2025 – The Port adopted an Addendum to the SEIR to address two changes to the Project. Together, the Final SEIR and the Addendum are referred to as the "SEIR as Addended."

AIR DISTRICT CEQA FINDINGS AND SUPPORTING FACTS

In accordance with Air District Rules and Regulations and CEQA, the Air District has reviewed and considered the 2002 EIR as Addended, the SEIR as Addended, and the CEQA findings, statements of overriding considerations, and mitigation monitoring and reporting programs associated with the Project (collectively referred to as the "Relevant CEQA Materials") prepared and certified by the Port and the City and has incorporated these documents' analysis into its decision-making process. All contents of the Relevant CEQA Materials are incorporated herein by reference. All impacts of the Project are discussed in great detail in the Relevant CEQA Materials. Also incorporated herein by reference is the Air District's file on Eagle Rock Aggregates' application for an Authority to Construct from the Air District for the Project, including all supporting information submitted by Eagle Rock Aggregates, and comments received and analysis completed by the Air District.

The SEIR concluded that there would be certain significant impacts in five impact areas – Aesthetics; Hazards and Hazardous Materials; Noise; Transportation; and Utilities, Energy, and Service Systems – that could be mitigated to below the level of significance.

The SEIR concluded that there would be additional significant and unavoidable impacts in 2 areas – Air Quality and Transportation – but the Port found that there were overriding considerations related to the benefits of the Project that outweighed these significant and unavoidable impacts. The Port made findings based on the SEIR that all significant impacts had been eliminated or substantially lessened where feasible, and that any remaining significant impacts were unavoidable and acceptable due to the overriding considerations. The Port therefore adopted CEQA Findings and a Statement of Overriding Considerations and approved the Project.

After a careful review of the record and its own analysis, the Air District makes the following findings.

First, the Air District finds that neither recirculation of the SEIR nor preparation of a subsequent/supplemental EIR is required for the Project, pursuant to CEQA Guidelines section 15162, as (1) no substantial changes have been proposed in the Project which will require major revisions of the SEIR due to new significant environmental effects or a substantial increase in the severity of effects; (2) no substantial changes have or will occur with respect to the circumstances under which the project is undertaken which will require major revisions of the SEIR; and (3) no new information that was not known at the time the SEIR was prepared is present showing there will be additional significant effects not discussed in the SEIR or there will be an increase in the severity of significant effects, or showing that mitigation measures/alternatives are feasible that were previously found infeasible but that Eagle Rock Aggregates declines to adopt them, or that mitigation measures/alternatives considerably different than those analyzed in the SEIR are available but Eagle Rock Aggregates declines to adopt them. In its August 8, 2025 Addendum, the Port identified two changes to the Project since preparation of the SEIR. First, the 2025 Addendum stated the barrier that would surround the operation could be entirely 8 feet tall, rather than varying from 8 to 45 feet tall as stated in the SEIR. Second, the 2025 Addendum stated that there would be two barge reclaim hoppers utilized by the Project, rather than one as stated in the SEIR. The Air District has reviewed the 2025 Addendum and independently determined that these changes do not trigger the requirement to prepare a supplemental or subsequent EIR pursuant to CEQA Guidelines section 15162. With regard to the change in the barrier's height, the SEIR did not take into account the air quality impacts of the barrier, and so any reduction in the barrier's size would not alter the impacts analysis in the SEIR. Further, the description of the barrier in the SEIR was vague, and it is highly complex to calculate the impact of a physical barrier on wind, so it would not be possible to estimate the impact that the proposed alterations to the barrier would have on emissions. Likewise, with regard to aesthetics, even with a shorter barrier, views of the facility would be consistent with the existing industrial and maritime uses of the Project site and the surrounding area, as described in the SEIR. Separately, the addition of a second barge reclaim hopper would not increase throughput capacity and would have no or negligible effects on emission rates of any pollutants as compared to what was already analyzed in the SEIR.

The Air District also finds based on review and analysis of the Relevant CEQA Materials and its own analysis and independent judgment that the Project will have certain impacts that are less than significant as documented in the Relevant CEQA Materials, certain impacts that are significant but have been mitigated to below the level of significance, and certain other impacts that are significant and unavoidable. As discussed below, the Air District finds and determines that (i) changes or alterations have been required in and/or incorporated into the Project to mitigate or avoid the significant impacts; (ii) any changes or alterations within the responsibility and jurisdiction of other public agencies have been (or should be) adopted by such other agencies; and/or (iii) there are specific economic, legal, social, technological, and other considerations that make it infeasible to impose other mitigation measures or alternatives addressed in the SEIR.

All Project impacts are summarized in Table ES-1 of the SEIR, which is fully incorporated herein. As regards impacts that, as discussed in the Relevant CEQA Materials, have been mitigated to a level that is not significant, the Air District finds and determines that changes or alterations have been required and incorporated into the Project to mitigate or avoid the significant impacts. This mitigation is described in detail in the SEIR and is summarized in the mitigation monitoring and reporting program associated with the Port's approval of the Project, both of which are fully incorporated herein. The Air District makes this finding on the basis that the Air District

has no reason to believe that the mitigation imposed by the relevant agencies will not be effective based on the discussion in the Relevant CEQA Materials.

The following discussion summarizes the impacts that, according to the SEIR, could not be mitigated to a level that is not significant. As discussed below, the Air District finds and determines that there are specific economic, legal, social, technological, and other considerations that make it infeasible to impose other mitigation measures or alternatives addressed in the SEIR.

Impact 1 - Air Quality. The 2002 EIR as Addended identifies the following significant unavoidable air quality impacts from construction and operation of the Redevelopment Plan to which the Proposed Project would contribute.

(1) Construction equipment exhaust resulting in increased levels of nitrogen oxide (NOx), reactive organic gas (ROG), carbon monoxide (CO), and particulate matter with diameter of less than 10 microns (PM10) or in substantially increased diesel emissions (Impact 4.4-2).

(2) Increased Port maritime, rail and trucking operations resulting in NOx, ROG, and PM10 emissions, substantially increased diesel emissions, and potential exposure of pollutant-sensitive receptors to substantial pollutant concentrations (Impacts 4.4-3 and 5.4-1 [cumulative]).

According to the SEIR, these impacts of the OAB Area Redevelopment Plan would remain significant and unavoidable with the Proposed Project, but, according to the SEIR, the Proposed Project would not contribute significantly to most of these impacts. The SEIR identified PM2.5 emissions from Proposed Project operations at the Maximum Exposed Individual Worker (on Port property) to be an increase in severity of air quality impacts, although the SEIR identified this as a conservative determination.

Impact 2 – Transportation. The 2002 EIR as Addended identifies one significant unavoidable transportation impact to which the Proposed Project would contribute: Impact TRANS-2, which determined that the OAB Area Redevelopment Plan would cause some roadway segments on the Metropolitan Transportation System either to operate at Level of Service ("LOS") F or increase the volume/capacity ratio by more than three percent on segments already operating at LOS F. The small number of vehicle trips added by the Proposed Project would not increase the severity of this previously identified impact.

The Port found that with respect to the foregoing impacts that will or may not be mitigated to a less than significant level, that all feasible mitigation measures have been adopted and the remaining significant impacts are acceptable for the reasons set forth in their Statement of Overriding Considerations.

The Air District concurs and finds that, where impacts remain significant, there are specific economic, legal, social, technological, and other considerations that make it infeasible to impose other mitigation measures or alternatives addressed in the Relevant CEQA Materials, as discussed below in the Air District's Statement of Overriding Considerations.

STATEMENT OF OVERRIDING CONSIDERATIONS

As required under Public Resources Code section 21081 and CEQA Guidelines sections 15093 and 15096, the Air District has balanced the benefits of the Project against its unavoidable adverse impacts and has determined that the significant and unavoidable adverse impacts of the Project as documented in the Relevant CEQA Materials are acceptable in light of the specific economic, legal, social, technological and other benefits of the Project, which outweigh the significant and unavoidable adverse impacts.

Specifically, the Air District finds that it does not have legal authority to disapprove the Project or to require changes to the Project that would substantially reduce the Project's significant environmental impacts. The Air District must approve a permit application if the application meets requirements defined by federal and state law and by Air District regulations. CEQA only permits an agency to utilize its existing authority and does not expand such authority. (See Public Resources Code section 21004.) That means the Air District cannot require mitigation or alterations to reduce impacts to less than significance unless the Air District has existing authority, independent of CEQA, to require such changes. Although this permitting decision is discretionary under CEQA because the "best available control technology" analysis allows for some degree of discretion, that discretion is cabined and would not allow for the imposition of mitigation beyond what the Air District is requiring in its permit. Therefore, legal considerations require the Air District to approve this permit application and to approve the Project.

The documents and other materials that constitute the record of proceedings upon which this decision is based are available to the general public at the Air District offices, 375 Beale Street, San Francisco, CA 94105, under the custody of Pamela J. Leong, Director of Engineering. Also, the Port has posted the SEIR and related CEQA documents at: https://www.portofoakland.com/business/bids-rfp-center/ceqa-nepa-documents.

Pamela J. Leong

Digitally signed by Pamela J. Leong
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Date: 2026.08.13 18:26:16 -07'00'

Pamela J. Leong
Director of Engineering
Bay Area Air District

8/13/2026
Date