Table A1 Wine Rock Quarry Operational Emissions

			Operational Em		Enteriore							
	Emission		Equation	Variables	PM-10	ROG	Emissions CO	NOX	SOX			
Oncretion	Factor	Units	1	2	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day			
Operation	Factor	Units			105/uay	105/uay	105/uay	105/uay	105/uay			
Excavation Equipment Exhaust Emissions			Pieces of Equipment	Operating Hours								
PM-10	0.014	11 /1	1	0	0.1							
Excavator	0.014	lbs/hr	1	8	0.1							
Dozer	0.054	lbs/hr	l	8	0.4							
Generator Sets	0.012	lbs/hr	2	8	0.2							
Loader	0.018	lbs/hr	2	8	0.3							
Other Material Handling Equipment	0.019	lbs/hr	1	8	0.2							
Water Truck	0.011	lbs/hr	1	8	0.1							
ROG												
Excavator	0.065	lbs/hr	1	8		0.5						
Dozer	0.005	lbs/hr	1	8		1.5						
Generator Sets	0.192	lbs/hr	2	8		0.5						
Loader	0.066	lbs/hr	2	8		1.1						
		lbs/hr	ے 1			1.1 0.7						
Other Material Handling Equipment	0.081		1	8								
Water Truck	0.051	lbs/hr	1	8		0.4						
CO												
Excavator	0.510	lbs/hr	1	8			4.1					
Dozer	0.735	lbs/hr	1	8			5.9					
Generator Sets	0.269	lbs/hr	2	8			4.3					
Loader	0.436	lbs/hr	2	8			7.0					
Other Material Handling Equipment	0.438	lbs/hr	1	8			3.5					
Water Truck	0.349	lbs/hr	1	8			2.8					
NOX												
Excavator	0.317	lbs/hr	1	8				2.5				
Dozer	1.361	lbs/hr	1	8				10.9				
Generator Sets	0.278	lbs/hr	2	8				4.5				
Loader		lbs/hr										
	0.385		2	8				6.2				
Other Material Handling Equipment	0.516	lbs/hr		8				4.1				
Water Truck	0.279	lbs/hr	1	8				2.2				
SOX												
Excavator	0.001	lbs/hr	1	8					0.0			
Dozer	0.003	lbs/hr	1	8					0.0			
Generator Sets	0.001	lbs/hr	2	8					0.0			
Loader	0.001	lbs/hr	2	8					0.0			
Other Material Handling Equipment	0.001	lbs/hr	1	8					0.0			
Water Ttuck	0.002	lbs/hr	1	8					0.0			
Water Fluer	0.001	103/111	1	U					0.0			
			1	Total	1.3	4.7	27.5	30.4	0.1			

Sources: Off-Road Mobile Source Emission Factors; SCAQMD 2022

Table A2Wine Rock QuarryStationary Source Emissions from Portable Crushing/Screening Plant

			S tu	cional y source	CHIISSIONS ITOM FO		, ser een	ing i iunt					
					Equation Variables			-		Emissions			
								Particulate	PM-10	PM-2.5			
		Emission					PM-10	Control	lbs/day with	lbs/day with	CO	NOX	SOX
	Operation	Factor	Units	1	2	3	lbs/day	Efficiency	control	control	lbs/day	lbs/day	lbs/day
Aggregate Processing Plant (typical)				Tons/hr	Operating Hours			included					
PM10			lbs/ton				0.00		0.00	0.00	NA	NA	NA
	Crusher	0.00050	lbs/ton	12.5	8		0.05		0.05	0.01			
	Screen 1	0.00074	lbs/ton	6.25	8		0.04		0.04	0.01			
	Screen 2	0.00074	lbs/ton	6.25	8		0.04		0.04	0.01			
			lbs/ton				0.00		0.00	0.00			
			lbs/ton				0.00		0.00	0.00			
			lbs/ton				0.00		0.00	0.00			
						Daily total (lbs)	0.12		0.12	0.03			
					Total Annual (tons)	Planned 250 days/yr	0.02		0.02	0.00	0.0	0.0	0.0

Notes: Portable Crushing/Screening plant based on up to 8 hrs/day at 100 tpd; 250 days/year.

Portable crushing/screening plant (MDAQMD Permit to Operate B013098)

Sources: AP-42, SCAQMD

AP-42, Section 11.19 - Crushed Stone Processing and Sand and Gravel Processing: EPA August 2004

Diesel generators included in Table A1.

Dust related PM2.5 = 0.208 of PM10 (CEIDARS List).

Particulate Control Efficiencies are included in Emission Factors.

Crusher and screens include water sprays.

Table A3Wine Rock QuarryTruck Movement Dust Emissions On-Site

			Equation Va	ariables	Emissions				
Operation	Emission Factor	Units	1	2	PM-10 lbs/day Unmitigated	PM-10 lbs/day Mitigated	PM-2.5 lbs/day Mitigated		
Truck Travel Onsite			# of trips/day	vmt					
Haul Trucks	1.76	lbs/vmt	8	0.30	4.2	1.1	0.2		
Loader	1.76	lbs/vmt	8	0.30	4.2	1.1	0.2		
					0.0	0.0	0.0		
				Total	8.4	2.1	0.4		

Note: PM10 mitigation assumed to reduce emissions 75 percent on roads per AP-42 and SCAQMD. Includes watering, some gravel surface, and speed limits.

vmt = vehicle miles driven

Source of Emission Factor: SCAQMD Particulate Matter Emission Factors and AP-42, Chapter 13.2.2

E=k * (s/12)^0.7 * (W/3)^0.45

E = PM10 emissions/vmt

k = constant (for PM10 = 1.5)

S - silt content (for sand & gravel plant road = 4.8%)

W = mean vehicle weight (street legal haul truck is 15 tons empty and 25 tons loaded) (Mean wt. = 17.5 tons)

Dust related PM2.5 = 0.208 of PM10 (CEIDARS List).

Table A4
Wine Rock Quarry
On-Road Haul Truck & Vehicle Exhaust Emissions Off-Site

				Equation V	ariables				Emiss						
		Emission				PM-10	PM-2.5	ROC	CO	NOX	SOX	CO2	CH4		
	Operation	Factor	Units	1	2	lbs/day									
Vehicle	Emissions Off-site			# of trips per day	vmt						Negl				
PM-10	Haul Trucks	0.0010	lbs/mile	8	20	0.155	0.143								
PM-2.5	Employee trips	0.0001	lbs/mile	20	20	0.039	0.036								
	Fuel Delivery Truck	0.0010	lbs/mile	0.4	50	0.019	0.018								
ROG	Haul Trucks	0.0010	lbs/mile	8	20			0.2							
	Employee trips	0.0005	lbs/mile	20	20			0.19							
	Fuel Delivery Truck	0.0010	lbs/mile	0.4	50			0.02							
СО	Haul Trucks	0.0048	lbs/mile	8	20				0.77						
	Employee trips	0.0040	lbs/mile	20	20				1.59						
	Fuel Delivery Truck	0.0048	lbs/mile	0.4	50				0.10						
NOX	Haul Trucks	0.0110	lbs/mile	8	20					1.76					
	Employee trips	0.0004	lbs/mile	20	20					0.14					
	Fuel Delivery Truck	0.0110	lbs/mile	0.4	50					0.22					
CO2	Haul Trucks	4.2152	lbs/mile	8	20							674			
	Employee trips	1.1102	lbs/mile	20	20							444			
	Fuel Delivery Truck	4.2152	lbs/mile	0.4	50							84			
CH4	Haul Trucks	0.00004	lbs/mile	8	20								0.01		
	Employee trips	0.00004	lbs/mile	20	20								0.02		
	Fuel Delivery Truck	0.00004	lbs/mile	0.4	50								$\begin{array}{c} 0.00\\ 0.00\end{array}$		
					Total	0.21	0.20	0.37	2.45	2.12	Negl	1,203	0.0245		
				Total Tons/Y	ear (2022)	0.03	0.02	0.05	0.31	0.26	Negl	137	0.08		
												mtCO2e	mtCO2e		

Emission Factors Source: SCAQMD On-Road Heavy Heavy Duty Diesel Trucks and On-Road Passenger Vehicles & Delivery Truck

Scenario Year 2022

PM2.5 fraction of PM10 Exhaust is 0.92 (CEIDARS List)

vmt = miles driven off-site

8 haul truck two-way trips/day for 250 days/year; 20 miles per one-way trip (average) to Barstow

Diesel delivery would occur once a week from Beck Oil Company located in Victorville. Every 3 days.

Annual CO2 and CH4 in metric tons CO2 equivalent (mtCO2e)

Employee vehicles est at 10 one-way trips per day / at an average distance of 20 miles (Barstow)

Table A5
Wine Rock Quarry
GHG Emissions

			_	G Emissions					
				Equation	on Variables	GHG Emissions			
		Emission				CO2	CH4	N2O	
	Operation	Factor	Units	1	2	lbs/day	lbs/day	g/day	
Excavation E	quipment Exhaust Emissions			Pieces of Equipment	Operating Hours				
CO2									
E	xcavator	120.0	lbs/hr	1	8	960.0			
D	ozer	239.0	lbs/hr	1	8	1912.0			
G	enerator Sets	61.0	lbs/hr	2	8	976.0			
L	oader	109.0	lbs/hr	2	8	1744.0			
	ther Material Handling Equipment	141.0	lbs/hr	1	8	1128.0			
	VaterTruck	123.0	lbs/hr	1	8	984.0			
		125.0	10.0,111	1	0	20110			
CH4					8				
E	xcavator	0.006	lbs/hr	1	8		0.0		
D	lozer	0.018	lbs/hr	1	8		0.1		
G	enerator Sets	0.003	lbs/hr	2	8		0.1		
L	oader	0.006	lbs/hr	2	8		0.1		
	ther Material Handling Equipment	0.007	lbs/hr	1	8		0.1		
	Vater Truck	0.005	lbs/hr	1	8		0.0		
				_	-				
N20*					Miles Per Day				
N2O*		0.000	/ '1	1	1			0.2	
	xcavator	0.202	g/mile	1	l			0.2	
	lozer	0.520	g/mile	1	l			0.5	
	enerator Sets	0.050	g/mile	2	l			0.1	
	oader	0.080	g/mile	2	1			0.2	
	ther Material Handling Equipment	0.492	g/mile	1	1			0.5	
W	Vater Truck	0.246	g/mile	1	1			0.2	
<u></u>		I		1	lbs/g per day	7704.00	0.44	1.72	
					Total lbs/day	7704.00	0.44	0.00	
Г	CO2 GWP	1			Total MTCO2e/day	3.49	0.01	0.00	
	CH4 GWP	28			MTCO2e/Year	873.63	1.41	0.10	
	N2O GWP	265			Total MTCO2e/year		875.14		

Sources: Off-Road Mobile Source Emission Factors; SCAQMD 2022 Source N2O: California Climate Action Registry General Reporting Protocol, 2009I; Table A9-8-C SCAQMD Handbook; Climate Leaders EPA, Section 3, Table 2 Duration (days): 250