Lane Regional Air Protection Agency
Standard Air Contaminant Discharge Permit

REVIEW REPORT

Wildish Building Material Co. **Permit No. 208893**
Plant 2, Stationary Rock Crusher
3600 Wildish Lane
Eugene, OR 97408
Website: https://www.wildish.com/

Source Information:

Primary SIC	1442 – Construction Sand and Gravel
Primary NAICS	212321 – Construction Sand and Gravel Mining

Source Categories: LRAPA Title 37 Table 1	B. 61 – Rock, concrete or asphalt crushing both portable and stationary, 25,000 or more tons/year C. 3 – All sources elected to maintain the netting basis C. 4 – All sources that request a PSEL equal to or greater than the SER for a regulated pollutant
Public Notice Category	III

Compliance and Emissions Monitoring Requirements:

Unassigned emissions		Source test [date(s)]	
Emissions credits		COMS	
Special Conditions		CEMS	
Compliance schedule		Ambient monitoring	

Reporting Requirements:

Annual report (due date)	Feb 15	Monthly report (due date)	
Semi-Annual Report (due date)		Quarterly report (due dates)	
SACC (due date)		Excess emissions report	Yes
GHG Report (due date)		Other report	

Air Programs:

NSPS (list subparts)		Title V	
NESHAP (list subparts)		Major FHAP Source	
40 CFR part 64 Compliance Assurance Monitoring (CAM)		Federal Major Source	
		TACT	Yes
Regional Haze (RH)		Type A State New Source Review	
40 CFR part 68 Risk Management		Type B State New Source Review	
Cleaner Air Oregon (CAO)		Prevention of Significant Deterioration (PSD)	
Synthetic Minor (SM)			
SM-80		Nonattainment New Source Review (NNSR)	

Permittee Identification

1. Wildish Building Materials Co. ("Wildish" or "the facility") operates a stationary rock crushing operation at 3600 Wildish Lane in Eugene, Oregon.

2. The facility operates under the primary Standard Industrial Classification (SIC) code of 1442 – Construction Sand and Gravel and the primary North American Industry Classification System (NAICS) code of 212321 – Construction Sand and Gravel Mining.

Other Permits

3. The parent company, Wildish Building Material Co., has two other air quality permits for this location: the facility has a Standard permit for an asphalt plant (permit number 208871) and a General permit (AQGP-009) for a concrete plant (source number 208948).

4. The facility's previous permit had a Gasoline Dispensing Facility (GDF) emission unit included as an aggregate insignificant activity. This emission unit was included in both of Wildish's Standard permits issued by LRAPA, causing the facility to double report GDF emissions. The GDF emission unit was removed from this permit and retained in the associated Asphalt Plant Standard permit (Permit No. 208871).

General Background Information

5. Wildish Sand & Gravel Co. operates a stationary rock crusher which is regulated by this permit. The crusher plant includes three crushers (cone, impact, and jaw), three screening points, and numerous transfer points. The crusher plant, which was last modified in 2026 with a new cone crusher, produces a maximum of 450 tons per hour of finished product. The crusher plant is equipped with a wet suppression system on three (3) screening points. The wet suppression system is operated at all times the crushing system is in operation.

   Fugitive emissions arise from material hauling and are controlled by watering of roads and track-out reduction measures.

Reason for Permit Action and Fee Basis

6. The permit action is a renewal for an existing Standard Air Contaminant Discharge Permit (Standard ACDP) which was issued on 8/4/2020 and expired on 8/4/2025. As the facility submitted a timely renewal application on 1/7/2025, the current permit will remain in effect until final action has been taken on the renewal application. The renewed Standard ACDP will be valid for up to five (5) years.

Attainment Status

7. The facility is located in an area that has been designated as attainment or unclassified for all criteria pollutants. The facility is located within 100 kilometers of four (4) Class I air quality protection areas: Diamond Peak Wilderness, Mount Washington Wilderness, Mount Jefferson Wilderness and Three Sisters Wilderness.

Permitting History

8. There have been no changes requested by the facility or otherwise to this permit since the last renewal on August 4th, 2020.

Emission Unit Description

9. The emission units regulated by the permit are the following:

Emission Unit ID	Description	Pollution Control Device	Installed/Last Modified
EU-1	Stationary Rock Crusher	Water spray and track out reduction measures	Last modified in 2026
AIA-1	Aggregate Insignificant Activities – Unpaved and Paved Roads	Road Watering	NA

10. EU-1: Stationary Rock Crusher
The stationary rock crusher consists of three (3) crushers: a jaw, impact, and cone. It also has three (3) screening points and numerous transfer points. The rock crusher operates solely on electric motors. It has a maximum production rate of 450 tons per hour, and fugitive emissions released from the unit are controlled by water sprayers. Emission factors are based on the DEQ AQ-06 factors with water spray as a control device.

Production Limits

11. Stationary rock crusher (EU-1) has production limits of 2,310,000 tons of rock crushed for any 12-consecutive calendar month period. The limit is set to comply with facility-requested particulate matter PSELs. The facility will maintain records of rock crushed on a monthly basis and ensure compliance with production limits.

Nuisance, Deposition, and Other Emission Limitations

12. Under LRAPA 49-010(1), the permittee must not cause or allow air contaminants from any source subject to regulation by LRAPA to cause a nuisance. Compliance is demonstrated through the following: fugitive emissions surveys, preparation and adherence of an operation and maintenance (O&M) plan, and documentation of all complaints received by the facility from the general public and following procedures to notify LRAPA of the receipt of these complaints.

13. Under LRAPA 32-055, the permittee must not cause or permit the emission of particulate matter which is larger than 250 microns in size at sufficient duration or quantity as to create an observable deposition upon the real property of another person. Compliance is demonstrated through the following: fugitive emissions surveys, preparation and adherence of an O&M plan, and documentation of all complaints received by the facility from the general public and following procedures to notify LRAPA of the receipt of these complaints.

14. Under LRAPA 32-090(1), the permittee must not discharge from any source whatsoever such quantities of air contaminants which cause injury or damage to any persons, the public, business or property; such determination is to be made by LRAPA. Compliance is demonstrated through the following: fugitive emissions surveys, preparation and adherence of an O&M plan, and documentation of all complaints received by the facility from the general public and following procedures to notify LRAPA of the receipt of these complaints.

General Emission Limitations

15. Under LRAPA 32-007(1), the facility is required to prepare an Operation and Maintenance Plan (O&M Plan) for the proper operation and maintenance of the EU-1 water sprayers and AIA-1 road watering operations. If the O&M Plan is updated, the facility must submit the updated copy to LRAPA for review. If LRAPA determines the plan is deficient, LRAPA may require the facility to amend the plan. In addition, the permittee must identify the frequency of control device inspections and develop procedures for documentation.

Typically Achievable Control Technology (TACT)

16. Subsection 32-008(2) requires new units installed or existing emission units modified on or after January 1, 1994, meet TACT if the emission unit meets the following criteria: The emission unit is not subject to Major NSR or Type A State NSR in title 38, and applicable NSPS in title 46, or any other standard applicable to only new or modified sources in title 30, title 33, title 39, or title 46 for the regulated pollutant; the source is required to have a permit; if new, the emission unit has emissions of any criteria pollutant equal to or greater than one (1) ton per year of any criteria pollutant; if modified, the emission unit would have an increase in emissions of any criteria pollutant equal to or greater than one (1) ton per year; and LRAPA determines that the proposed air pollution control devices and emission reduction processes do not represent TACT.

    16.a. EU-1, Stationary Rock Crusher is subject to TACT because it has emissions of PM, PM_{10} and $PM_{2.5}$ each greater than one (1) ton per year. While LRAPA has not performed a formal TACT determination for PM from this emission unit, LRAPA has determined that proper operation and maintenance of the water sprayer control device likely meet TACT for this emission unit.

    16.b. AIA-1, Unpaved and Paved Roads is not subject to TACT because it does not have emissions equal to or greater than one (1) ton per year of any criteria pollutant.

New Source Performance Standards (NSPS)

17. There are no NSPS applicable to emission units at this facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

18. There are no NESHAPs applicable to emission units at this facility.

Plant Site Emission Limits (PSELs)

19. The regulated pollutants emitted from processes at this facility are particulate matter (PM), particulate matter less than ten microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5).

The facility existed during the baseline period (1978). The production rate in 1978 was 1,150,000 tons per year as reported in the LRAPA Emission Inventory file for this facility. Current baseline emissions and PSELs are calculated using DEQ AF-EF-06.

The previous PM and PM10 PSELs were determined by adding the generic PSEL levels to the netting basis. Since the PTE for PM2.5 is less than the significant emission rate (SER) of 10 tons per year (tpy), the previous PM2.5 PSEL was set at the generic limit of 9 tpy. Generic PSELs were defined in the Oregon air regulations as limits set at one (1) ton less than the SER. This method of PSEL establishment has since been updated, and PSELs are now set equal to the source's PTE for all pollutants above the de minimis level. The proposed PSELs have been modified to reflect the facility's potential to emit assuming maximum operating capacity following LRAPA 42-0041(3).

20. Provided below is a summary of the baseline emission rate, netting basis, plant site emission limit, and potential-to-emit (PTE):

Pollutant	Baseline Emission Rate		Netting Basis		Plant Site Emission Limit (PSEL)		PTE (TPY)
	Previous (TPY)	Adjusted (TPY)	Previous (TPY)	Proposed (TPY)	Previous PSEL (TPY)	Proposed PSEL (TPY)	
PM	23.6	83.0	23.6	83.0	47	47	46.32
PM_{10}	11.5	29.7	11.5	29.7	26	24	23.13
$PM_{2.5}$	NA	NA	0.7	1.8	9	2.4	1.39

21. The PM and PM_{10} Baseline Emission Rates were adjusted from the previous evaluation to include the baseline unpaved and paved road emission unit. Emissions from unpaved and paved roads were calculated based on 1978 VMT estimates provided by the facility.

21.a. In accordance with LRAPA 42-0048(3), a baseline emission rate was not established for $PM_{2.5}$.

22. The PM and PM_{10} netting basis were set equal to the Baseline Emission Rate in accordance with LRAPA 42-0046(2)(a).

22.a. The $PM_{2.5}$ netting basis was set equal to the overall $PM_{2.5}$ fraction of the PM_{10} PSEL in effect on May 1st, 2011, multiplied by the PM_{10} netting basis. [LRAPA 42-0046(2)(b)]

23. The PSELs are set at the facility's potential to emit in accordance with LRAPA 42-0041(3) for all pollutants based on a maximum product throughput of 2,310,000 tons of rock crushed for any 12 consecutive calendar month period.

23.a. The PM, PM_{10} and $PM_{2.5}$ PSELs include an additional 1 tpy to account for aggregate insignificant emissions from unpaved and paved roads.

Significant Emission Rates

24. The PSEL increase over the netting basis is less than the Significant Emission Rate (SER) as defined in LRAPA title 12 for all pollutants as shown in the following table.

Pollutant	Proposed PSEL (TPY)	PSEL Increase Over Proposed Netting Basis (TPY)	PSEL Increase Due to Utilizing Existing Baseline Period (TPY)	PSEL Increase Due to Modification (TPY)	SER (TPY)
PM	47	0	0	0	25
PM_{10}	24	0	0	0	15
$PM_{2.5}$	2.4	0	0	0	10

Unassigned Emissions and Emission Reduction Credits

25. The facility has zero (0) unassigned emissions. Unassigned emissions are equal to the netting basis minus the source's current PTE, minus any banked emission reduction credits. The facility has zero (0) tons of emission reduction credits.

New Source Review (NSR) and Prevention of Significant Deterioration (PSD)

26. This source is located in an area that is designated attainment or unclassified for all regulated pollutants. For all the criteria pollutants the proposed PSELs are less than the federal major source threshold for non-listed sources of 250 TPY per regulated pollutant and are not subject to Major NSR.

Federal Hazardous Air Pollutants (FHAP) and Toxic Air Contaminants (TAC)

27. Potential annual federal hazardous air pollutant (FHAP) emissions are based on the potential to emit of the facility operating under permit limitations The highest single FHAP emitted by the facility is Manganese at approximately 0.024 tons per year. The potential total FHAP emissions are 0.03 tons per year. A major source of FHAPs is defined as having potential FHAP emissions of at least 10 tons per year of any single HAP and 25 tons per year of the aggregate of all FHAPs. This facility does not have potential FHAP emissions exceeding these thresholds and is considered an area source of FHAPs.

28. Under Cleaner Air Oregon (CAO) program, only existing sources that have been notified by LRAPA and new sources are required to perform risk assessments. Wildish Sand and Gravel Co. has not been notified by LRAPA and is therefore not yet required to perform a risk assessment or report annual emissions of toxic air contaminants. LRAPA required reporting of approximately 600 toxic air contaminants in 2023 and regulates approximately 260 toxic air contaminants (TAC) that have Risk Based Concentrations established in rule. All FHAPs are on the list of approximately

600 TACs. The FHAPs and TACs listed below are based upon safety data sheets and standard emission factors for the types of emission units at this facility. After the source is notified by LRAPA, they must update their inventory and perform a risk assessment to see if they must reduce risk from their TACs. Until then, this source will be required to report TAC emissions triennially.

29. The table below represents the potential emissions of FHAP from the facility, excluding potential emissions from categorically insignificant activities.

CAS Number	Pollutant	PTE (tpy)	FHAP	CAO TAC
7631-86-9	Silica, crystalline (respirable)	0.37	N	Y
7429-90-5	Aluminum	0.69	N	Y
7440-38-2	Arsenic	1.0 E-3	Y	Y
7440-41-7	Beryllium	4.6 E-5	Y	Y
7440-39-3	Barium	0.010	N	Y
7440-43-9	Cadmium	4.6 E-5	Y	Y
7440-48-4	Cobalt	5.1 E-4	Y	Y
7440-50-8	Copper	1.7 E-3	N	Y
7439-92-1	Lead	2.3 E-3	Y	Y
7439-96-5	Manganese	0.024	Y	Y
7440-02-0	Nickel	1.3 E-3	Y	Y
7782-49-2	Selenium	4.6 E-5	Y	Y
7440-66-6	Zinc	4.6 E-3	N	Y
		Total (tpy):	**0.03**	**1.1**

Toxics Release Inventory (TRI)

30. The Toxics Release Inventory (TRI) is a federal program that tracks the management of certain toxic chemicals that may pose a threat to human health and the environment. It is a resource for learning about toxic chemical releases and pollution prevention activities reported by certain industrial facilities. Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) created the TRI Program. In general, chemicals covered by the TRI Program are those that cause:

- Cancer or other chronic human health effects;
- Significant adverse acute human health effects; or
- Significant adverse environmental effects.

There are currently over 650 chemicals covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual TRI reports on each chemical. NOTE: The TRI Program is a federal program over which LRAPA has no regulatory authority. LRAPA does not guarantee the accuracy of any information copied from EPA's TRI website.

Wildish Sand & Gravel Co. is not covered by the TRI program because it is not one of the specific industry sectors required to report under the TRI program.

Compliance History

31. This facility is regularly inspected by LRAPA and frequently by other regulatory agencies. The following table indicates the LRAPA inspection history of this facility since the last permit issuance in 2020:

Type of Inspection	Date	Results
LRAPA – Full Compliance Evaluation	4/16/2021	No evidence of non-compliance Noted the water sprayers needed improvement to account for drier weather conditions

32. There have not been any enforcement actions issued to this facility.

Source Testing

33. The facility is not required to conduct performance testing because emissions can be reasonably estimated using industry-specific emissions factors. LRAPA is not aware of any performance testing conducted at this facility.

Recordkeeping Requirements

34. The facility is required to keep and maintain all records of the following information for a period of at least five (5) years and have available within 24 hours of a request from LRAPA:

Activity	Units	Minimum Recording Frequency
PSEL Recordkeeping		
Facility-wide 12-month rolling PSEL emission calculations according to Condition 5	TPY	Monthly
Tons of rock crushed according to Condition 6	Tons	Monthly
Vehicle miles traveled on unpaved and paved roads	Miles	Monthly
General Recordkeeping		
Log of fugitive emission surveys and corrective actions	NA	Weekly
O&M Plan, including procedures for controlling fugitive particulate matter emissions from the Stationary Rock Crusher (EU-1) and Unpaved and paved Roads (AIA-1)	NA	Documentation
Log of each nuisance complaint and the resolution	NA	Upon receipt of complaint

Activity	Units	Minimum Recording Frequency
Log of all planned and unplanned excess emissions	NA	Per occurrence

Reporting Requirements

35. The facility is required to submit to LRAPA the following information by no later than the dates indicated in the table below:

Report	Reporting Period	Due Date
PSEL calculations	Annual	February 15
Total crushed rock production	Annual	February 15
A summary of all complaints received by the permittee and their resolution	Annual	February 15
Excess emissions logs if any planned or unplanned excess emissions have occurred during the reporting period	Annual	February 15
Any updates or changes made to the Operation and Maintenance Plan during the reporting period	Annual	February 15

Public Notice

36. Pursuant to subsection 37-0066(4)(a)(A), issuance of a renewed Standard ACDP requires a Category III public notice under title 31. In accordance with subsection 31-0030(3), LRAPA will provide public notice of the proposed permit action and a minimum of 35 days for interested persons to submit written comments.

37. The proposed permit will be on public notice from July 15, 2026 to August 18, 2026. Written comments may be submitted during this public comment period. If requested by ten (10) or more individuals or an individual representing a group of more than ten (10) individuals, LRAPA will schedule a public hearing on the proposed permit action. LRAPA will provide a minimum of 30 days notice for a public hearing. After the comment period and hearing (if requested), LRAPA will respond to comments received and then take final action to issue or deny the permit.

SD
Date

Emission Detail Sheets

PLANT SITE EMISSION LIMITS			
Emission Units	**PM**	**PM_{10}**	**$PM_{2.5}$**
	tpy	**tpy**	**tpy**
Rock Crushing Operation (EU-1) [1]	46.20	23.10	1.39
Aggregate Insignificant Activities - Unpaved and Paved Roads (AIA-1)	1.00	1.00	1.00
Potential to Emit (PTE)	**47.20**	**24.10**	**2.39**
PSELs[(2)(3)]	47	24	2.4
1. Wildish rock crushing operation emissions are based on a throughput of the crusher of 2,310,000 tons per year.			
2. One (1) ton per year was assumed for the unpaved and paved roads PM, PM_{10} and $PM_{2.5}$ PTE. See the Aggregate Insignificant Activities PTE table for actual emissions.			
3. PSELs are set equal to the facility's PTE in accordance with LRAPA 42-0041(3).			

Plant Site Emission Limits

Pollutant	Baseline [1]	Netting Basis		Plant Site Emission Limit (PSEL)		PSEL Increase	PTE Emissions	Increase over Proposed Netting Basis	SER
		Previous	Proposed	Previous PSEL	Proposed PSEL[2]				
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
PM	82.43	23.60	82.43	47	47.0	0.0	47.20	-35.43	25
PM_{10}	29.69	11.50	29.69	26	24.0	-2.0	24.10	-5.69	15
$PM_{2.5}$	NA	0.70	1.80	9.0	2.4	-6.6	2.39	0.60	10
1. In accordance with LRAPA 42-0048(3), a baseline emission rate for PM2.5 was not established. The netting basis for PM2.5 was established using PM2.5 fractions of PM10 from DEQ AQ-EF08 for Crushed Stone-fines crushing.									
2. The PM, PM_{10} and $PM_{2.5}$ PTEs have one (1) ton per year added to account for Aggregate Insignificant emissions from the unpaved and paved roads.									

Baseline, PSEL, and Netting:

EU-1: Stationary Rock Crusher

Stationary Rock Crusher (EU-1) PTE			
Pollutant	Projected Maximum Throughput (tpy)[3]	Emission factor (lb/ton)[1][2]	Annual Emissions (tpy)
PM	2,310,000	0.04	46.2
PM10	2,310,000	0.02	23.1
PM2.5	2,310,000	0.0012	1.39
Aggregate HAP	2,310,000	2.58 E-5	0.03
Single HAP (Manganese)	2,310,000	2.12 E-5	0.024
1. Emission factors taken from DEQ AQ-EF-06: Rock crushers with water spray control			
2. HAP emission factors taken from San Diego APCD O11-C02: Primary Crushing with Water Spray Control			
3. Projected Maximum Throughput requested by facility			

Unpaved and Paved Roads (AIA-1) PTE				
	Pollutant	Annual Vehcile Miles Traveled (miles) [3]	Emission factor (lb/ton)[1][2]	Annual Emissions (tpy)
Unpaved	PM	152	1.2419	0.09
	PM10	152	0.3165	0.02
	PM2.5	152	0.0317	0.00
Paved	PM	171	0.273	0.02
	PM10	171	0.055	0.005
	PM2.5	171	0.013	0.001
1. Emission factor for unpaved roads taken from EPA AP-42 13.2.2, including 75% road watering efficiency control				
2. Emission factor for paved roads taken from EPA AP-42 13.2.1				
3. Annual vehicle miles traveled supplied by the facility, averaged from operating years 2021-2025				

AIA-1: Unpaved and Paved Roads

Unpaved Roads (EU:AIA-1)		
Methodology		Empirical Equation
Source Used		EPA AP-42. Chapter 13.2.2, Eq. 1a
Equation		E = k(s/12)^a(W/3)^b
Where:		a = 0.7 for PM and 0.9 for PM_{10} & $PM_{2.5}$ and b = 0.45. Both 'a' and 'b' are empirical constants
Variable Descriptions and Calculations		
PM		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	4.9	Particle size multiplier (lb/VMT), AP-42, Table 13.2.2.2
a =	0.7	Unitless constant, AP-42, Table 13.2.2.2
b =	0.45	Unitless constant, AP-42, Table 13.2.2.3
s =	4.8	Silt Content of road surface material, %, AP-42, Table 13.2.2.1 - Stone quarrying and processing - Haul roads to/from pit (percent of mean)
W =	41.7	Mean vehicle weight, tons (source supplied)
E =	8.43	lb/VMT (PM emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure 13.2.2-1)
E(ext) =	**4.97**	EF for PM adjusted for rain days (AP-42, 13.2.2, Eq (2))
PM10		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	1.5	Particle size multiplier (lb/VMT), AP-42, Table 13.2.2.2
a =	0.9	Unitless constant, AP-42, Table 13.2.2.2
b =	0.45	Unitless constant, AP-42, Table 13.2.2.3
s =	4.8	Silt Content of road surface material, %, AP-42, Table 13.2.2.1 - Stone quarrying and processing - Haul roads to/from pit (percent of mean)
W =	41.7	Mean vehicle weight, tons (source supplied)
E =	2.15	lb/VMT (PM_{10} emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure 13.2.2-1)
E(ext) =	**1.27**	EF for PM_{10} adjusted for rain days (AP-42, 13.2.2, Eq (2))
PM2.5		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	0.15	Particle size multiplier (lb/VMT), AP-42, Table 13.2.2.2
a =	0.9	Unitless constant, AP-42, Table 13.2.2.2
b =	0.45	Unitless constant, AP-42, Table 13.2.2.3
s =	4.8	Silt Content of road surface material, %, AP-42, Table 13.2.2.1 - Stone quarrying and processing - Haul roads to/from pit (percent of mean)
W =	41.7	Mean vehicle weight, tons (source supplied)
E =	0.21	lb/VMT ($PM_{2.5}$ emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure 13.2.2-1)
E(ext) =	**0.127**	EF for $PM_{2.5}$ adjusted for rain days (AP-42, 13.2.2, Eq (2))
Control %	**75**	Road watering efficiency (%)
PM EF	**1.2419**	Emission factors with wet suppression control.
PM_{10} EF	**0.3165**	
$PM_{2.5}$ EF	**0.0317**	
Annual Vehicle Miles Traveled		
VMT	**152**	Total amount of vehicle miles traveled per year
Total Annual Particulate Matter Emissions, tons (EF x VMT)/2000 lb/ton		
PM	**0.09**	tons per year
PM10	**0.02**	tons per year
PM2.5	**0.002**	tons per year
Annual Vehicle Miles Traveled provided by the facility		
Silt Content of road surface material, %, AP-42, Table 13.2.2.1: Sand and gravel processing - Haul roads to/from pit (percent of mean)		

Paved Roads (EU:AIA-1)		
Methodology		Empirical Equation
Source Used		EPA AP-42. Chapter 13.2.1, Eq. 3
Equation		E = [k*(sL)^0.91(W)^1.02]*(1-1.2P/N)
Variable Descriptions and Calculations		
PM		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	0.011	Particle size multiplier for particulate size range (lb/VMT), AP-42, Table 13.2.1-1
sL =	1.1	Road surface silt loading (g/m^2), AP-42, Table 13.2.1-3
W =	41.7	Average vehicle weight, tons (source supplied)
E =	0.54	lb/VMT (PM_{10} emission factor)
P =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure
N =	365	Number of days in annual averaging period
E(ext) =	0.273	EF adjusted for rain days (AP-42, 13.2.1.3, Eq 3), 75% reduction - wet supp
PM10		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	0.0022	Particle size multiplier for particulate size range (lb/VMT), AP-42, Table 13.2.1-1
sL =	1.1	Road surface silt loading (g/m^2), AP-42, Table 13.2.1-3
W =	41.7	Average vehicle weight, tons (source supplied)
E =	0.11	lb/VMT (PM_{10} emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure
N =	365	Number of days in averaging period
E(ext) =	0.055	EF adjusted for rain days (AP-42, 13.2.1.3, Eq 3), 75% reduction - wet supp
PM2.5		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	0.00054	Particle size multiplier for particulate size range (lb/VMT), AP-42, Table 13.2.1-1
sL =	1.1	Road surface silt loading (g/m^2), AP-42, Table 13.2.1-3
W =	41.7	Average vehicle weight, tons (source supplied)
E =	0.03	lb/VMT (PM_{10} emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure
N =	365	Number of days in averaging period
E(ext) =	0.013	EF adjusted for rain days (AP-42, 13.2.1.3, Eq 3), 75% reduction - wet supp

Annual Vehicle Miles Traveled		
VMT	**171**	Total amount of vehicle miles traveled per year
Total Annual Particulate Matter Emissions, tons (E x VMT)/2000 lb/ton		
PM	**0.02**	tons per year
PM10	**0.005**	tons per year
PM2.5	**0.001**	tons per year
Annual Vehicle Miles Traveled provided by the facility		

EU-1 FHAP and TAC Summary

EU-1 FHAP and TAC Summary						
Compound	CAS	FHAP	CAO TAC	Emission factor (lb/ton)	Maximum throughput (tons)	Annual Emissions Rate (tpy)
Silica, crystalline (respirable)	7631-86-9	N	Y	3.18E-04	2310000	3.67E-01
Aluminum	7429-90-5	N	Y	6.00E-04	2310000	6.93E-01
Arsenic	7440-38-2	Y	Y	8.80E-07	2310000	1.02E-03
Beryllium	7440-41-7	Y	Y	4.00E-08	2310000	4.62E-05
Barium	7440-39-3	N	Y	9.00E-06	2310000	1.04E-02
Cadmium	7440-43-9	Y	Y	4.00E-08	2310000	4.62E-05
Cobalt	7440-48-4	Y	Y	4.40E-07	2310000	5.08E-04
Copper	7440-50-8	N	Y	1.48E-06	2310000	1.71E-03
Lead	7439-92-1	Y	Y	2.00E-06	2310000	2.31E-03
Manganese	7439-96-5	Y	Y	2.12E-05	2310000	2.45E-02
Nickel	7440-02-0	Y	Y	1.12E-06	2310000	1.29E-03
Selenium	7782-49-2	Y	Y	4.00E-08	2310000	4.62E-05
Zinc	7440-66-6	N	Y	3.96E-06	2310000	4.57E-03

Baseline Plant Site Emissions

BASELINE PLANT SITE EMISSIONS			
Emission Units	**PM**	**PM_{10}**	**$PM_{2.5}$[3]**
	tpy	**tpy**	**tpy**
Sand & Gravel Crushing Operation (EU-1) [1]	23.00	11.50	NA
Aggregate Insignificant Activities - Unpaved and Paved Roads (AIA-1)[2]	59.43	18.19	NA
Baseline Emissions Rate	**82.43**	**29.69**	**0.00**
1. Wildish rock crushing operation emissions are based on a throughput of the crusher of 1,150,000 tons per year			
2. Unpaved and Paved roads emissions were evaluated on 1978 VMT estimates provided by the facility			
3. Baseline emission rate was not established for PM2.5 in accordance with LRAPA 42-0048(3)			

Baseline Unpaved and Paved Roads Emissions

1978: Unpaved Roads (EU:AIA-1)		
Methodology		Empirical Equation
Source Used		EPA AP-42. Chapter 13.2.2, Eq. 1a
Equation		E = k(s/12)^a(W/3)^b
Where:		a = 0.7 for PM and 0.9 for PM10 &PM2.5 and b = 0.45. Both 'a' and 'b' are empirical constants
Variable Descriptions and Calculations		
PM		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	4.9	Particle size multiplier (lb/VMT), AP-42, Table 13.2.2.2
a =	0.7	Unitless constant, AP-42, Table 13.2.2.2
b =	0.45	Unitless constant, AP-42, Table 13.2.2.3
s =	4.8	Silt Content of road surface material, %, AP-42, Table 13.2.2.1
W =	28.75	Mean vehicle weight, tons (source supplied)
E =	5.94	lb/VMT (PM emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure 13.2.2-1)
E(ext.) =	**3.50**	EF for PM adjusted for rain days (AP-42, 13.2.2, Eq (2))
PM10		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	1.5	Particle size multiplier (lb/VMT), AP-42, Table 13.2.2.2
a =	0.9	Unitless constant, AP-42, Table 13.2.2.2
b =	0.45	Unitless constant, AP-42, Table 13.2.2.3
s =	4.8	Silt Content of road surface material, %, AP-42, Table 13.2.2.1
W =	28.75	Mean vehicle weight, tons (source supplied)
E =	1.82	lb/VMT (PM_{10} emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure 13.2.2-1)
E(ext) =	**1.07**	EF for PM_{10} adjusted for rain days (AP-42, 13.2.2, Eq (2))
PM2.5		
E =		Emission Factor, pounds per vehicle miles traveled (lb/VMT)
k =	0.15	Particle size multiplier (lb/VMT), AP-42, Table 13.2.2.2
a =	0.9	Unitless constant, AP-42, Table 13.2.2.2
b =	0.45	Unitless constant, AP-42, Table 13.2.2.3
s =	4.8	Silt Content of road surface material, %, AP-42, Table 13.2.2.1
W =	28.75	Mean vehicle weight, tons (source supplied)
E =	0.18	lb/VMT ($PM_{2.5}$ emission factor)
p =	150	Number of annual days with at least 0.01 inches of precipitation, unitless (AP-42 Figure 13.2.2-1)
E(ext) =	**0.107**	EF for $PM_{2.5}$ adjusted for rain days (AP-42, 13.2.2, Eq (2))

Control %	**50**	**Road watering efficiency (%)**
PM EF	**1.7492**	Emission factors with wet suppression control.
PM_{10} EF	**0.5355**	
$PM_{2.5}$ EF	**0.0535**	

1978 Estimated Annual Vehicle Miles Traveled		
VMT	**67,955**	
Total Annual Particulate Matter Emissions, tons (EF x VMT)/2000 lb/ton		
PM	**59.43**	tons per year
PM10	**18.19**	tons per year
PM2.5	**1.82**	tons per year
Road watering efficiency was taken from the facility's emissions detail inventory sheet.		
Silt Content of road surface material, %, AP-42, Table 13.2.2.1: Sand and gravel processing - Haul roads to/from pit (percent of mean).		

1978: Site Haul Truck and Vehicle Miles Travel Information		
Average length of unpaved haul road	0.65	miles
Unpaved haul road round trip	1.3	miles
1978 Projected Throughput	1150000	tpy
Average weight of material per load	22	tons
1978 Vehicle Miles Traveled	**67,955**	**miles/year**
Unloaded weight of trucks	17.5	tons
Loaded weight of trucks	40	tons
Average weight of trucks	28.75	tons