January 12, 1996

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Permits and Enforcement

FROM: Brian R. Monson, Chief
Operating Permits Bureau
Permits and Enforcement

PWS for BRM

SUBJECT: Issuance of Tier II Operating Permit #065-00004 to Walters Ready-Mix, Inc., Rexburg Facility

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits (OP).

PROJECT DESCRIPTION

This project is for an Operating Permit for the Walters Ready-Mix, Inc., Rexburg facility, Idaho. Emission point sources existing at the facility are as follows: one (1) diesel generator, one (1) silo filter vent, crushers and screens, solid material transport, handling, and storage, and fuel storage tanks. Fugitive emission sources found at the facility are as follows: solid material storage piles and unpaved roads.

SUMMARY OF EVENTS

On April 26, 1995, the Division of Environmental Quality (DEQ) received the facility's Tier II Operating Permit (OP) application forms. On September 17, 1995, the application was determined complete. On November 6, 1995, Walters Ready-Mix, Inc., submitted supplemental material on the wet suppression system. On December 1, 1995, a proposed Tier II OP was issued for public comment. No comments were received.

RECOMMENDATIONS

Based on the review of the Operating Permit application and on applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Walters Ready-Mix, Inc., in Rexburg be issued a Tier II Operating Permit for the sources that exist at the facility. Staff also recommends that the facility be notified of the Tier II permit fee requirement in writing. This fee will be applicable upon issuance of the permit.

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cc: J. Johnston, EIRO
Source File
COF
OP File Manual

November 20, 1995

MEMORANDUM

TO: Brian R. Monson, Chief
Operating Permits Bureau
Permits and Enforcement

FROM: Yihong Chen, Air Quality Engineering Specialist
Operating Permits Bureau
Bill Rogers, Air Quality Engineer
Construction Permits Bureau

THROUGH: Susan J. Richards, Air Quality Permits Manager
Operating Permits Bureau

SUBJECT: Technical Analysis for Proposed Tier II Operating Permit #065-00004
Walters Ready-Mix, Inc., Rexburg, Idaho

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits (OP).

FACILITY DESCRIPTION

Walters Ready-Mix, Inc. (Walters), Rexburg facility, is a stationary concrete batch plant that produces ready-mix concrete. The facility consists of two (2) major processes, sand and gravel processing, which supports the concrete batching process. The facility was installed on July 1, 1986, without obtaining a Permit to Construct (PTC). The crushing and screening process is subject to 40 CFR 60 Subpart OOO.

PROJECT DESCRIPTION

This project is for an Operating Permit for the following existing point and fugitive emission sources.

Point Sources:

(1) Diesel Generator - Compression ignition (CI) diesel industrial engine with a maximum rated capacity of 295 kilowatts.

Diesel Generator Specifications:

Manufacturer:	Detroit
Model:	8V-92
Max. Hourly Combustion Rate:	9.97 gal/hr
Normal Annual Combustion Rate:	10527 gal/yr
Fuel:	Diesel

Stack Design Specifications:

Height:	10 feet (above ground level)
Exit Diameter:	0.5 feet
Exit Gas Flow Rate:	1,950 acfm (at max. hourly combustion rate, estimated)
Exit Temperature:	200°C - 400°C (at max. hourly combustion rate, estimated)

(2) Silo Filter Vent - Used to control the PM and PM10 emissions from silos of cement and flyash.

Silo Filter Vent Specifications:

Manufacturer:	McNeilus Truck and Manufacturing, Inc.
Model Number:	SFV 270
Bag Area:	270 Sq Ft
Number of Bags:	35
Bag Diameter:	4 7/8 inch
Bag Length:	72 inch
Bag Material:	9.10 oz spun polyester
Material Weave:	Sateen
Air Permeability:	20 CFM/sq ft
Control Efficiency:	99.5% to one micron
Cleaning Mechanism:	Vibratory
Flow Rate:	650 cfm
Air/Cloth Ratio:	2.40
Outlet Size:	6" x 8"
Outlet Velocity:	1950 Ft/Min

(3) Crushers and Screens - There is one (1) primary crusher, one (1) secondary crusher, one (1) sand screen, and three (3) different size rock screens with rated capacities 377 T/hr. These sources are subject to 40 CFR 60 Subpart OOO. Because the conveyors have a maximum capacity of 400 T/hr, the crushing process will have a maximum capacity of 400 T/hr in the permit instead of 377 T/hr. This will allow for maximum operational flexibility.

(4) Solid Material Transport, Handling, and Storage - Belt conveyor and storage bins under this source category are subject to 40 CFR 60 Subpart OOO.

(5) Fuel Storage Tanks

Fugitive Sources:

(1) Solid material storage piles.
(2) Paved and Unpaved Roads.

A more detailed process description is found in the operating permit and it application materials.

SUMMARY OF EVENTS

On April 26, 1995, the Division of Environmental Quality (DEQ) received Walters' Tier II Operating Permit (OP) application forms, signed by Hugh M. McIlroy. On May 6, 1995, DEQ returned the application materials for appropriate treatment of confidential material according to IDAPA 16.01.01.126. On June 8, 1995, DEQ received Walters' application forms with the appropriate confidentiality requirements. On July 6, 1995, DEQ determined that the application was incomplete. On July 28, 1995, DEQ received a letter from Walters requesting a thirty (30) day extension in response to the incompleteness letter. On August 18, 1995, DEQ received additional submittal materials in response to the incompleteness letter. On september 25, 1995, DEQ received a new GENERAL INFORMATION form for the Tier II application. The form was signed by Stacey Walters due to Mr. Hugh McIlroy no longer being designated the responsible official for the company. All the application materials were reviewed, and it was determined that the application was complete on September 17, 1995. On November 6, 1995, supplemental material on wet suppression system was received.

A public comment period is scheduled from December 1, 1995, through January 2, 1995.

DISCUSSION

1. Emission Estimates

Emission estimates were provided by Walters and can be seen in the June 8, 1995, application and in the August 18, 1995, amended application submittal. DEQ also estimated the PM, PM-10, SO_2, NO_x, CO, and the VOC emissions using emission factors from AP-42, Section 8.19.1 (Sand and Gravel Processing), Section 13.2.4 (Aggregated Handling and Storage Piles), Section 11.12 (Concrete Batching), Section 3.3 (Gasoline and Diesel Industrial Engines), and Section 13.2.2 (Unpaved Roads). The calculation spreadsheet of permitted emissions is in Table A-1, Appendix A.

PM is the pollutant that triggers major source status for Walters Ready Mix Inc.. The potential to emit (PTE) is above 100 T/yr, which was calculated by adding PM emissions from point sources and that from process units regulated under 40 CFR 60 Subpart OOO. The calculation spreadsheet of PTE is in Table A-2, Appendix A.

The applicant chose to net out of Tier I permitting by limiting the potential to emit of PM to be less than 100 T/yr. The applicant accepted an enforceable limit on operating hours for each source addressed by the permit to be 2,080 hours/yr, except for fuel storage tanks and road traffic. With this limit, the applicant shall be able to operate the facilities at their rated capacity which were provided in the application materials. The water spray system, as specified in the permit application, will operate under following conditions: the water used for water spray system operates at an average flowrate of 1,600 gallons per minute and the water pressure of the spray averages thirty (30) psig during all screening/crushing operations. The moisture content of sand and rocks is estimated to be within the range of 1.5% - 7.0% or above. The transfer of sand and rocks from fixed conveyor to plant bins is operated within a building.

The VOC emissions from storage were estimated by applicant.

Modeling has not been performed due to this source's low emissions at current operating rates and to the permit requirement that fugitive emissions shall not leave the property. The permit gives the facility a certain level of flexibility.

Compliance determination shall be based on the sections, OPERATING REQUIREMENTS and MONITORING AND RECORDKEEPING REQUIREMENTS, in the permit.

2. Area Classification

Walters, Rexburg facility is located in Rexburg, Madison County, Idaho. This area is located in AQCR 61. The area is classified as attainment or unclassifiable for all Federal and state criteria air pollutants (i.e., PM, PM-10, CO, NO_x, and SO_2)

3. Facility Classification

This facility is not a major facility as defined in IDAPA 16.01.01.008.14 because the facility's potential to emit is limited to less than 100 tons per year. The facility is not a designated facility as defined in IDAPA 16.01.01.25. The facility is subject to federal regulation in accordance with 40 CFR 60, Subpart OOO. The facility is classified as an A2 source because the actual emissions of PM is less than 100 tons per year. The SIC code for the facility is 1442 (Construction Sand and Gravel).

4. Regulatory Review

This operating permit is subject to the following permitting requirements:

a.	IDAPA 16.01.01.401	Tier II Operating Permit.
b.	IDAPA 16.01.01.403	Permit Requirements for Tier II Sources.
c.	IDAPA 16.01.01.404.01(c)	Opportunity for Public Comment.
d.	IDAPA 16.01.01.404.04	Authority to Revise Operating Permits.

e.	IDAPA 16.01.01.406	Obligation to Comply.
f.	IDAPA 16.01.01.470	Permit Application Fees for Tier II Permits.
g.	IDAPA 16.01.01.625	Visible Emission Limitation.
h.	IDAPA 16.01.01.650	General Rules for the Control of fugitive dust.
i.	40 CFR 60 Subpart OOO	Standards of Performance for Nonmetallic Mineral Processing Plant.

FEES

Fees apply to this facility in accordance with IDAPA 16.01.01.470. The facility is subject to the permit application fee for Tier II permits of five hundred dollars ($500.00). IDAPA 16.01.01.470 became effective on March 7, 1995.

RECOMMENDATIONS

Based on the review of the Operating Permit application and all applicable state and federal rules and regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Walters Ready-Mix, Inc., in Rexburg be issued a Tier II Operating Permit for the sources that exist at the facility. An opportunity for public comment shall be provided as required by IDAPA 16.01.01.404.01. Staff also recommends that the facility be notified of the Tier II permit fee requirement in writing. This fee will be applicable upon issuance of the permit.

SRR\SJR\TC:jrj...\permit\letters\walters.tam

cc: J. Johnston, EIRO
Source File
COF

APPENDIX A

WALTERS READY-MIX; TABLE A-1

FACILITY: WALTERS READY MIX, INC.
CONTACT: STACEY WALTERS
ADDRESS: P.O. Box 390
REXBURG, ID 83440
PHONE: (800)359-3586
PROJECT: Permitted Emissions
FILE NAME: waltersloplt3A

Operating hour: 2080 hr
Permitted emission (PM): 88 40 T/yr

REFERENCES (AP-42)	PROCESS	POLLU-OP HOUR	PROD Annual (a)	UNITS	PROD hourly (unit same as annual)	EF	UNITS	UNCONTRL EMISSIONS (TON/YR) (c)	UNCONTRL EMISSIONS (LB/HR) (b)	CONTROL EFFICIENCY	CONTROL EMISSIONS (TON/YR) (d)	CONTROL EMISSIONS (LB/HR) (d)	REMARKS
	MATERIAL HANDING POINTS												
13 2 4(1/95)	Raw material: pond - storage next to pond	PM	832000	tons	400	0 001	lbs/ton	0 425	0 408	1	0 000	0 000	Raw material from pond to storage pile next to pond - completely wet process
13 2 4(1/95)	Raw material: front end loader - trucks	PM	832000	tons	400	0 001	lbs/ton	0 425	0 408	0	0 425	0 408	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	Raw material: trucks-storage pile in process'g plant	PM	832000	tons	400	0 001	lbs/ton	0 425	0 408	0	0 425	0 408	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	Transfer raw material: storage - hopper	PM	832000	tons	400	0 001	lbs/ton	0 425	0 408	0	0 425	0 408	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	Transfer raw material: hopper - conveyor	PM	832000	tons	400	0 001	lbs/ton	0 425	0 408	0	0 425	0 408	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	Transfer raw material: conveyor - screen	PM	832000	tons	400	0 001	lbs/ton	0 425	0 408	0	0 425	0 408	Equation in Section 13 2 4 3 with k=1,U=8,M=7
									sum(L 18:L 19)=		0 849		
									SUM		2 123	2 041	
	EMISSION POINTS												
8 19 1(9/85)	Screens - Primary Sand	PM	832000	tons	400	0 16	lbs/ton	66 560	64 000	0 9	6 656	6 400	
8 19 1(9/85)	Crushing - primary	PM	832000	tons	400	0 018	lbs/ton	7 488	7.200	0	7 488	7.200	
8 19 1(9/85)	Screening - 3/8"	PM	832000	tons	400	0 16	lbs/ton	66 560	64 000	0 9	6 656	6 400	
8 19 1(9/85)	Crushing - secondary	PM	832000	tons	400	0 018	lbs/ton	7.488	7 200	0	7.488	7 200	
8 19 1(9/85)	Screening - 3/4"	PM	832000	tons	400	0 16	lbs/ton	66 560	64 000	0 9	6 656	6 400	
8 19 1(9/85)	Screening - 1 1/2"	PM	832000	tons	400	0 16	lbs/ton	66 560	64 000	0 9	6 656	6 400	
									sum(L 24: L 29)=		41 6		
									SUM		41.600	40 000	
	MATERIAL HANDLING POINTS												M = 1.5% - 7% (8/18/96 p.14) Mavg = 5*(1.5+7) = 4 25
13 2 4(1/95)	screened materials - belt conveyors	PM	784160	tons	377	0 001	lbs/ton	0 400	0 385	0	0 400	0 385	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	rock conveyor - storage pile(s)	PM	784160	tons	377	0 001	lbs/ton	0 400	0 385	0	0 400	0 385	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	sand conveyor - storage pile	PM	784160	tons	377	0 001	lbs/ton	0 400	0 385	0	0 400	0 385	Equation in Section 13 2 4 3 with k=1,U=8,M=7
13 2 4(1/95)	rock storage pile(s)?? - fixed conveyor	PM	784160	tons	377	0 002	lbs/ton	0 805	0 774	0	0 805	0 774	Equation in Section 13 2 4 3 with k=1,U=8,Mavg=4 25
13 2 4(1/95)	sand storage pile - fixed conveyor	PM	784160	tons	377	0 002	lbs/ton	0 805	0 774	0	0 805	0 774	Equation in Section 13 2 4 3 with k=1,U=8,Mavg=4 25
13 2 4(1/95)	fixed conveyor (rock) - stock hopper	PM	784160	tons	377	0 002	lbs/ton	0 805	0 774	0	0 805	0 774	Equation in Section 13 2 4 3 with k=1,U=8,Mavg=4 25
13 2 4(1/95)	fixed conveyor (sand) - stock hopper	PM	784160	tons	377	0 002	lbs/ton	0 805	0 774	0	0 805	0 774	Equation in Section 13 2 4 3 with k=1,U=8,Mavg=4 25
13 2 4(1/95)	Transfer rock and sand to plant bins	PM	784160	tons	377	0 002	lbs/ton	0 724	0 696	0 9	0 072	0 070	Section 13 2 4 3 with k=1,U=8,Mavg=4.25, enclosed, and
11 12(1/95)	drop to elevated bins	PM	784160	tons	377	0 029	lbs/ton	10 233	9 840	0 9	1 023	0 984	control efficiency = 90%
11 12(1/95)	Transfer flyash+cement to silos (pneumatic)	PM	124800	tons	60	0 27	lbs/ton	16 848	16 200	0 996	0 067	0 065	limit 0 05 g/dscm 40 CFR 60 Subpart OOO
	Tr chemicals to tanks (pressurized hose)	PM	(6)flow rate(cfm)=		250	0 070	g/dscm						No emissions from this process
11 12(1/95)	Tr materials from bins to weigh hopper	PM	998400	yd^3	480	0 04	lbs/cu y	19 968	19 200	0	19 968	19 200	
11 12(1/95)	Tr concrete to mixer trucks (chute)	PM	998400	yd^3	480	0 04	lbs/cu y	19 968	19 200	0	19 968	19 200	
									sum(L 26: L 48)=		45 517867		
									SUM		45 518	43 767	
	STORAGE PILES		Active Day										
8 19 1(9/91)	Raw material (active)	PM	86 67	1 02	acres	13.2	lbs/ac/d	0 583	-	0	0 583	0 000	Table 8.19 1-1 2080 hr active
8 19 1(9/91)	Raw material (inactive)	PM	278 33	1 02	acres	3 5	lbs/ac/d	0 497	-	0	0 497	0 000	
8 19 1(9/91)	Rock, Sand, and Dirt (active)	PM	86 67	20	acres	13 2	lbs/ac/d	11 440	-	0	11 440	0 000	
8 19 1(9/91)	Rock, Sand, and Dirt (inactive)	PM	278 33	20	acres	3 5	lbs/ac/d	9 742	-	0	9 742	0 000	
	VEHICLE TRAFFIC												
13 2 2(1/95)	Tractor + trailer	PM	38 682	VMT/yr		3 556	lb/VMT	0 136	0	0	0.136	0 000	See Vehicle Miles Traveled Table and the Vehicle Traffic
	Dump + trailer	PM	1297 346	VMT/yr		2 791	lb/VMT	3 667	0	0	3 667	0 000	Emission Factor Calculation table on next page
	Mixer trucks	PM	3626 773	VMT/yr		2 237	lb/VMT	7 992	0	0	7 992	0 000	13 2 2 Eq 1
	Flat bed truck	PM	2.727	VMT/yr		2 213	lb/VMT	0 006	0	0	0 006	0 000	E = k(5 9)(s/12)(S/30)(W/3)^(0 7)(w/4)^(0 5)(365 p)/365
	Loaders	PM	272.727	VMT/yr		0 850	lb/VMT	0 228	0	0	0 228	0 000	Emission = VMT/yr * VMT * ratio
	Pickup trucks	PM	15 909	VMT/yr		0 190	lb/VMT	0 003	0	0	0 003	0 000	
	Mobile crane	PM	0 909	VMT/yr		2 141	lb/VMT	0 002	0	0	0 002	0 000	
	DIESEL GENERATOR	POLLUTANT											
			2797.602	MMBtu	1.345								
3 3(7/93)	Screen/crusher motor-generator	PM				0 31	lb/MMBt	0 434	1.751	0	0 434	1.751	Emissions = fuel used(gal/hr) x fuel weight(lbs/gal) x
	Fuel Used: 10527 0 gal/yr	NOx				4 41	lb/MMBt	6 168	24 911	0	6.168	24 911	heat value(MMBTU/lb) x emission factor(lb/MMBTU)
	Fuel wt 7 1 lbs/gal	SOx				0 29	lb/MMBt	0 406	1 638	0	0 406	1 638	Table 3 3 1
	Heat Val. 0 019 MMBtu/lb	CO				0 95	lb/MMBt	1 329	5 366	0	1.329	5.366	Ration = 8760/2080 = 4 2
	Hourly fuel used 9 97 gal/hr	VOC:											
		Aldehydes				0 07	lb/MMBt	0 098	0 395	0	0 098	0 395	
		Hydrocarbons:											
		Exhaust				0 35	lb/MMBt	0 490	1 977	0	0 490	1 977	
		Evaporative				0 00	lb/MMBt	0 000	0 000	0	0 000	0 000	

WALTERS READY-MIX: TABLE A-1

Crankcase		0.01	lb/MMBt	0.014	0.056	0	0.014	0.056
Refueling	*	0.00	lb/MMBt	0.000	0.000	0	0.000	0.000
					sum(L71)*		0.434	
						VOC SUM	0.601	2.429

Note:
(a) Annual Production (T/yr) = Hourly Rate (T/hr)* Operating Hour (hr/yr)
(b) Short Term Emission (lb/hr) = EF(emission factor, lb/ton) * Hourly Process Rate (ton/hr)
(c) Long Term Emission (ton/yr) = EF(emission factor, lb/ton) *(1/2000 ton/lb) * Anual Process Rate (ton/yr)
(d) Controlled Emission (lb/hr or ton/yr) = Uncontrolled Emission * Control Efficiency
(e) g/dscm = T/yr(emission)*(yr/2080hr)*(1hr/60min)*(2000lb/1T)*(456.59g/lb)*(1min/250 ft^3)*(1ft^3/0.02837m^3)

WALTERS READY-MIX, TABLE A-2

FACILITY: WALTERS READY MIX, INC.
CONTACT: STACEY WALTERS
ADDRESS: P.O. Box 390
REXBURG, ID 83440
PHONE: (800)359-3586
PROJECT: Calculation of Potential to Emit (PTE), PM
FILE NAME: walters\opt12a

Operating hour: 8760 hr
PTE (PM)= 1493.66 T/yr

REFERENCES (AP-42)	PROCESS	POLLU-OP HOUR	PROD Annual (a)	UNITS	PROD hourly (unit same as annual)	EF	UNITS	UNCONTRL EMISSIONS (TON/YR) (c)	UNCONTRL EMISSIONS (LB/HR) (b)	REMARKS
	MATERIAL HANDING POINTS									
13 2 4(1/95)	Raw material: pond - storage next to pond	PM	3504000	tons	400	0.001	lbs/ton	0.000	0	Raw material from pond to storage pile next to pond - competely wet process
13 2 4(1/95)	Raw material: front-end loader - trucks	PM	3504000	tons	400	0.001	lbs/ton	1.788	0.408	Equation in Section 13 2 4.3 with k=1,U=8,M=7
13.2 4(1/95)	Raw material. trucks - storage pile in process'g plant	PM	3504000	tons	400	0.001	lbs/ton	1.788	0.408	Equation in Section 13.2.4.3 with k=1,U=8,M=7
13 2 4(1/95)	Transfer raw material: storage - hopper	PM	3504000	tons	400	0.001	lbs/ton	1.788	0.408	Equation in Section 13.2.4.3 with k=1,U=8,M=7
13 2 4(1/95)	Transfer raw material: hopper - conveyor	PM	3504000	tons	400	0.001	lbs/ton	1.788	0.408	Equation in Section 13.2.4.3 with k=1,U=8,M=7
13 2.4(1/95)	Transfer raw material. conveyor - screen	PM	3504000	tons	400	0.001	lbs/ton	1.788	0.408	Equation in Section 13 2.4 3 with k=1,U=8,M=7
						sum(p18+p19)=		3.576		
	EMISSION POINTS									
8 19 1(9/85)	Screens - Primary Sand	PM	3504000	tons	400	0.16	lbs/ton	280.320	64.000	PM EF is not available. TSP EF is used instead for screens/crushers
8 19 1(9/85)	Crushing - primary	PM	3504000	tons	400	0.018	lbs/ton	31.536	7.200	
8 19 1(9/85)	Screening - 3/8"	PM	3504000	tons	400	0.16	lbs/ton	280.320	64.000	
8 19 1(9/85)	Crushing - secondary	PM	3504000	tons	400	0.018	lbs/ton	31.536	7.200	
8.19 1(9/85)	Screening - 3/4"	PM	3504000	tons	400	0.16	lbs/ton	280.320	64.000	
8 19 1(9/85)	Screening - 1 1/2"	PM	3504000	tons	400	0.16	lbs/ton	280.320	64.000	
						sum(p24 .p29)=		1184.352		
			22.42166							M =1.5% - 7% (8/18/95 p.14)
	MATERIAL HANDLING POINTS									Mavg =.5*(1.5+7) = 4.25
13 2 4(1/95)	screened materials - belt conveyors	PM	3302520	tons	377	0.001	lbs/ton	1.685	0.385	Equation in Section 13.2 4.3 with k=1,U=8,M=7
13 2.4(1/95)	rock conveyor - storage pile(s)	PM	3302520	tons	377	0.001	lbs/ton	1.685	0.385	Equation in Section 13.2.4.3 with k=1,U=8,M=7
13 2 4(1/95)	sand conveyor - storage pile	PM	3302520	tons	377	0.001	lbs/ton	1.685	0.385	Equation in Section 13.2.4.3 with k=1,U=8,M=7
13 2.4(1/95)	rock storage pile(s)?? - fixed conveyor	PM	3302520	tons	377	0.002	lbs/ton	3.389	0.774	Equation in Section 13.2.4.3 with k=1,U=8,Mavg=4.25
13 2.4(1/95)	sand storage pile - fixed conveyor	PM	3302520	tons	377	0.002	lbs/ton	3.389	0.774	Equation in Section 13.2.4.3 with k=1,U=8,Mavg=4 25
13 2.4(1/95)	fixed conveyor (rock) - stock hopper	PM	3302520	tons	377	0.002	lbs/ton	3.389	0.774	Equation in Section 13.2.4.3 with k=1,U=8,Mavg=4.25
13 2 4(1/95)	fixed conveyor (sand) - stock hopper	PM	3302520	tons	377	0.002	lbs/ton	3.389	0.774	Equation in Section 13.2.4.3 with k=1,U=8,Mavg=4 25
13.2.4(1/95)	Transfer rock and sand to plant bins	PM	3302520	tons	377	0.002	lbs/ton	3.050	0.696	Section 13 2.4.3 with k=1,U=8,Mavg=4 25, enclosed, and
11.12(1/95)	drop to elevated bins	PM	3302520	tons	377	0.029	lbs/ton	43.098	9.840	control efficiency = 90%
11 12(1/95)	Transfer flyash+cement to silos (pneumatic)	PM	525600	tons	60	0.27	lbs/ton	70.956	16.200	
	Tr chemicals to tanks (pressurized hose)	PM	0							No emissions from this process
11.12(1/95)	Tr materials from bins to weigh hopper	PM	4204800	yd^3	480	0.04	lbs/cu yd	84.096	19.200	
11 12(1/95)	Tr concrete to mixer trucks (chute)	PM	4204800	yd^3	480	0.04	lbs/cu yd	84.096	19.200	
						sum(p26..48)=		303.9052781		
	STORAGE PILES		Active Day							
8 19 1(9/91)	Raw material (active)	PM	365	1.02	acres	13.2	lbs/ac/da	2.457	-	Table 8.19.1-1 8760 hr active
8.19 1(9/91)	Raw material (inactive)	PM	0	1.02	acres	3.5	lbs/ac/da	0.000	-	
8 19 1(9/91)	Rock, Sand, and Dirt (active)	PM	365	20	acres	13.2	lbs/ac/da	48.180	-	
8 19 1(9/91)	Rock, Sand, and Dirt (inactive)	PM	0	20	acres	3.5	lbs/ac/da	0.000	-	
	VEHICLE TRAFFIC									
13 2 2(1/95)	Tractor + trailer	PM	38.682	VMT/yr		3.556	lb/VMT	1.541	0	See Vehicle Miles Traveled Table and the Vehicle Traffic
	Dump + trailer	PM	1297.346	VMT/yr		2.791	lb/VMT	40.555	0	Emission Factor Calculation table on next page
	Mixer trucks	PM	3628.773	VMT/yr		2.237	lb/VMT	90.877	0	13.2 2 Eq.1
	Flat bed truck	PM	2.727	VMT/yr		2.213	lb/VMT	0.068	0	E = k(5.9)(s/12)(S/30)(W/3)^(0.7)(w/4)^(0.5)(365-p)/365
	Loaders	PM	272.727	VMT/yr		0.850	lb/VMT	2.597	0	Emission = VMT/yr * VMT * ratio (d)

Vehicle Miles Traveled Table (for Off-road Miles)

Vehicle Type	Trips/mo~, (avg)	Ft/trip (avg)	VMT/Yr	Remarks
TT	85.1	200	38.68	VMT = (trips/month x 12 months x off-road feet/trip) /5280 feet/mile
Dump+tr	208.333	2740	1297.35	
Mixers	874.4	1825	3626.77	
Flat beds	3	400	2.73	
Loaders	600	200	272.73	
Pickups	35	200	15.91	
Crane	1	400	0.91	

Terms (for equation in Section 11.2.1)

	TT	Dumps	Mixers	Flats	Loaders	Pickups	Crane	Remarks
k =	1	1	1	1	1	1	1	Per 13.2.1-2
s =	4.8	4.8	4.8	4.8	4.8	4.8	4.8	Table 11.2.1-1 Sand & Gravel processing
S =	5	5	5	5	5	5	5	Speed limit enforced in plant
W =	34.0	27.6	25.7	32.5	16.0	1.8	31.0	Mean vehicle weight
w =	24.3	20	14.2	10	4	4.4	10	Mean number of wheels
p =	120	120	120	120	120	120	120	Figure 13.2.1-1