Air Quality Permitting
Statement of Basis

September 17, 2003

Permit to Construct No. P-030121

Central Pre-Mix,
Portable Concrete Batch Plant

AIRS Facility No. 777-00330

Prepared by:

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AIR QUALITY DIVISION

Final

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Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BPM's	Best Management Practices
cy/hr	cubic yards per hour
DEQ	Department of Environmental Quality
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
in	inches
km	kilometer
kW	kilowatts
lb/hr	pound per hour
NAAQS	National Ambient and Air Quality Standards
NESHAP	National Emission Standard for Hazardous Pollutants
NSPS	New Source Performance Standards
O&M	operation and maintenance
PM	Particulate Matter
PM_{10}	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PTC	Permit to Construct
SIC	Standard Industrial Classification
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, *Rules for the Control of Air Pollution in Idaho*, for issuing permits to construct.

2. PROJECT DESCRIPTION

Central Pre-Mix is proposing to commence construction of a portable concrete batching facility. Central Pre-Mix is requesting a PTC be issued to cover the operations of the concrete batching facility in both attainment and nonattainment areas throughout the state of Idaho. This PTC includes provisions for collocated operations in attainment areas with one other portable source (i.e., rock crusher, hot-mix asphalt, or concrete batch plant). The concrete batch plant's maximum hourly throughput is 150 tons per hour (150 ton/hr). Electricity is supplied to the facility by the local utility or by a 150-kilowatt (150-kW), diesel-fired electrical generator set.

3. FACILITY DESCRIPTION

This PTC is for a portable concrete batch plant with a diesel-fired generator.

4. SUMMARY OF EVENTS

June 24, 2003	Central Pre-Mix submits application to DEQ
June 27, 2003	DEQ receives application.
July 11, 2003	DEQ notices facility of receipt of application and failure to submit application fee.
July 23, 2003	DEQ receives application fee.
August 5, 2003	DEQ deems application complete

5. PERMIT HISTORY

This PTC is the facility's initial permit for the proposed equipment.

6. TECHNICAL ANALYSIS

6.1 Process Description

The facility produces concrete by combining water, sand and gravel, and Portland cement. This portable concrete batch plant consists of storage bins for the sand and gravel, a storage silo for the cement, weigh bins that weigh each component, a conveyor, a water meter, and a control panel. Sand and gravel are either produced on site or purchased elsewhere. Typically, three or four different sizes of gravel and one or two different sizes of sand are stockpiled for varying job specifications. Cement is delivered by truck and pneumatically transferred to its storage silo. A baghouse is used to capture cement dust, and batch scale particulate emissions during this process. For this source category, the baghouse is considered process equipment primarily, and air pollution control equipment secondarily. Power to run the facility is provided by the local utility, or a diesel-fired generator.

The production process begins when sand and gravel are drop-fed into their respective weigh bins. When a pre-determined amount of each is weighed, the sand and gravel is drop-fed onto an inclined conveyor, which transfers the mixture into a cement truck. A predetermined amount of cement is also weighed and drop-fed through a rubber chute into the cement truck. The rubber chute directs the cement and provides dust control. The baghouse is also used to capture dust from the cement weigh bin. Water is then added, and the components are mixed in the truck on the way to the job site.

6.2 Equipment Listing

Portable Concrete Batch Plant

Manufacturer	-	Koehring - Johnson
Model	-	Johnson Super Champ
Maximum Capacity (cy/hr)	-	150

Cement Storage Silo/Weigh Bin Baghouse

Stack Height (ft)	-	29
Stack Diameter (Effective, in)	-	44
Exit Air Flowrate (acfm)	-	500
Capture Efficiency	-	99% for PM and PM_{10}

Generator

Manufacturer/Model	-	Caterpillar
Rated Power Output (kW)	-	150
Stack Diameter (in)	-	5
Stack Height (ft)	-	8
Exhaust Gas Flowrate (acfm)	-	1391
Exhaust Gas Temperature (°F)	-	913
Fuel Type	-	diesel
Fuel Usage (gallons per hour)	-	12

When collocated, this concrete batch plant is then part of a single, larger source that produces either concrete, aggregate, and/or asphalt, depending upon which type of portable plant the concrete batch plant is collocated with. The equipment used by this single, larger source would include the concrete batch plant equipment listed above plus the equipment of the other portable plant. To see an equipment description for the other portable plant, see the corresponding permitting files for that plant.

6.3 Emission Estimates

Emissions estimates were performed using an updated version of DEQ's standard concrete batch plant spreadsheet. Generator emission factors used were taken from AP 42 Section 3.3 Gasoline and Diesel Industrial Engines (10/96). Concrete batch plant emission factors used in estimating emissions were taken from AP 42, Section 11.12 Concrete Batching (10/01). Emissions estimates were performed for collocated and not collocated with another facility in attainment/unclassified and nonattainment areas. Emissions were estimated using operating usage values determined through a compliance review with NAAQS.

6.4 Modeling

Modeling was performed using SCREEN3 modeling software. Unit concentrations were determined for each emission point, and combined to represent emissions from the facility.

For collocated operations within nonattainment areas, a conservative approach was taken by assuming that each of the units would be limited to half of the standard. By limiting the emissions of the collocated units to just below half (0.4 $\mu g/m^3$ for the 24-hr impact, 2.49 $\mu g/m^3$ for the annual impact) of allowable impact when operating alone, the combined emissions of the two collocated sources will be within the allowable levels. For operation of the facility within a nonattainment area when not collocated with another facility , the ambient impacts of the facility were compared to allowable impacts of 1 $\mu g/m^3$ for the 24-hr impact and 5 $\mu g/m^3$ for the annual impact. Iterations of operating conditions were then performed to determine what conditions would allow for operation of the facility and demonstrate compliance with NAAQS.

For not collocated operations in attainment areas, operation of the batch plant and its generator (if used) are limited as needed, or as specified by the facility, so that the modeled impacts would meet available allowable concentrations. Because annual concentration values are based on 8760 hours of operation and the analysis given on page 2 of Appendix A is based on such, the data shows that the facility shall comply with the NAAQS when not collocated with another facility in an attainment area at its requested operating conditions. For operations in attainment areas when the facility is collocated, the facility still demonstrates that it will consume less than half of the available allowable concentration at the same requested operating conditions.

6.5 Facility Classification

This facility is not a major facility as defined in IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. Portable concrete batch plants are not designated facilities as defined in IDAPA 58.01.01.006.27. Concrete batch plants are not subject to federal New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPS) regulation. The SIC code for concrete batch plants is 3272. The AIRS facility classification for this facility is "B" because the uncontrolled potential to emit is less than (100 T/yr).

6.6 Area Classification

This portable facility may operate in both attainment and nonattainment areas throughout the state of Idaho.

7. PERMIT REQUIREMENTS

Attainment or Unclassifiable Areas

7.1 Attainment or Unclassifiable Area Emissions Limits

Emission limits were estimated using operating and equipment rating values submitted by the facility. The emission factors used in the estimation of emissions were taken from AP42, as noted in Section 6.3 of this memorandum. Emission limits were established to assure compliance with NAAQS in attainment areas. The emission limits specifically establish compliance for the facility when collocated and not collocated with another facility in attainment or unclassifiable areas.

7.2 Compliance Demonstration

The operating limits given in Section 3 of the permit establish surrogate limits for the annual emission limit of the facility when it is located in attainment or unclassified areas. These limits were established as a result of the analysis for 24-hr and annual impacts when the facility was not collocated and collocated. At the facility's requested hours of operation per year for the generator and throughput limitations for the batch plant, emission estimates show the facility to be in compliance with NAAQS when collocated and not collocated within attainment or unclassified areas. Specifically, the facility's requested operating limits represent half of the required operating rates given on p.3 of the Appendix A. All monitoring and recordkeeping requirements are provided in Section 2, of the Statewide Requirements.

Nonattainment Area When Collocated

7.3 Nonattainment Area When Collocated Emissions Limits

The facility shall not operate in nonattainment areas when collocated with another facility.

7.4 Compliance Demonstration

Compliance with this condition shall be demonstrated by complying with submittal of the required relocation forms, as required by IDAPA 58.01.01.500.

Nonattainment Area When Not Collocated

7.5 Nonattainment Area When Not Collocated Emissions Limits

Emission limits were estimated using operating and equipment rating values submitted by the facility and determined through NAAQS review. The emission factors used in the estimation of emissions were taken from AP42, as noted in Section 6.3 of this memorandum. Emission limits were established to assure compliance with NAAQS in nonattainment areas when the facility is not collocated.

7.6 Compliance Demonstration

The annual hours of operation limit given in Section 5 of the permit is the surrogate limit for the annual emission limit of the facility when it is located in attainment or unclassified areas. The daily limit on hours of operation was established to assure compliance with the 24-hour PM_{10} NAAQS standard. These limits were established as a result of the analysis for 24-hr and annual impacts when the facility was not collocated. Initially at the facility's requested hours of operation per year for the generator and processing equipment, emission estimates showed that the facility may exceed NAAQS when collocated within nonattainment areas. Iterations were then performed and operational limits were determined that demonstrated compliance with NAAQS for the facility.

Regulatory Review

IDAPA 58.01.01.201	Permit to Construct Required
IDAPA 58.01.01.202	Application Procedures
IDAPA 58.01.01.203	Permit Requirements for New and Modified Stationary Sources
IDAPA 58.01.01.209	Procedures for Issuing Permits
IDAPA 58.01.01.210	Demonstration of Preconstruction Compliance with Toxic Standards
IDAPA 58.01.01.211	Conditions for Permits to Construct
IDAPA 58.01.01.212	Obligation to Comply
IDAPA 58.01.01.577	Ambient Air Quality Standards
IDAPA 58.01.01.625	Visible Emissions
IDAPA 58.01.01.650	Rules for Control of Fugitive Dust
IDAPA 58.01.01.725	Rules for Sulfur Content of Fuels

8. AIRS INFORMATION

Table 8.1 AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Air Program / Pollutant	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	Title V	Area Classification A – Attainment U – Unclassifiable N – Nonattainment
SO_2	B					B	U
No_x	B					B	U
CO	B					B	U
PM_{10}	B					B	U
PT (Particulate)	B					B	A
VOC	B					B	U
THAP (Total HAPs)	B					B	U
			APPLICABLE SUBPART				

a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

b AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

9. FEES

Central Pre-Mix paid the $1,000 application fee as required in IDAPA 58.01.01.224 on July 23, 2003. A permit to construct processing fee of $5000 is required in accordance with IDAPA 58.01.01.225 because the increase in emissions from the modification is 19.55 T/yr as indicated in Table 9.1.

Central Pre-Mix is not a major facility as defined in IDAPA 58.01.01.008.10. Therefore, Tier 1 registration fees are not applicable in accordance with IDAPA 58.01.01.387.

Table 9.1 EMISSIONS INVENTORY

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	13.65	0	13.65
SO_2	0.90	0	0.90
CO	2.94	0	2.94
PM_{10}	1.38	0	1.38
VOC	1.09	0	1.09
Total:	19.96	0	19.96
Fee Due	$ 5,000.00		

10. RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Central Pre-Mix be issued PTC No. P-030121 for its portable concrete batch plant. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

ABC/bf Permit No. P-030121

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APPENDIX A

Generator and Concrete Batching and Point Source Emissions

Company Name:	[redacted]	Concrete Batch Plant Emission Calculations	[redacted]
Permit No.:		**Date:**	
Project:			

Concrete Batch Plant Information

Facility Production Capacity:	[redacted]	[=] yd^3/hr	301.8 ton/hr concrete
Maximum Annual Capacity:		[=] yd^3/yr	1321884 ton/yr concrete
Cement Silo:			
Mzx Loading Rate	[redacted]	tph	
Modeled 1-hr Concentration:		[=] $\mu g/m^3$, at emission rate of 1 lb/hr	
Baghouse Control Effcy.			
Cement Hopper:			
Modeled 1-hr Concentration:	[redacted]	[=] $\mu g/m^3$, at emission rate of 1 lb/hr	
Baghouse Control Effcy.			

Generator Set Information

Generator? (Y/N)	[redacted]	
Generator Size:		[=] kW
Hours of Operation:		[hr/yr]
Units:	[redacted]	(A = Horsepower)
		(B = Kilowatts)
Ignition Timing Retard?		(Y/N)
Fuel Type:		(A = Diesel-Fired Generator)
		(B = Gasoline-Fired or Dual-Fired Generator)
		Equivalent MMBtu
	[redacted]	
		Equivalent hP
		201.105
Fuel Usage (gal/hr)	12.0000	1
Diesel Heating Value	19300	Btu/lb
Modeled 1-hr Concentration:	[redacted]	[=] µg/m3, at emission rate of 1 lb/hr

1 yd concrete has : **14% cement & cement addtitive**
82% sand & aggregate

As taken from footnotes of AP42, table 11.12-2

Therefore, 301.8 ton concrete consists of:
42.3 tons cement & cement addtitive
247.5 tons sand & aggregate

Therefore, 1321884 ton/yr concrete consists of:
185064 tons cement & cement addtitive
1083945 tons sand & aggregate

OUTPUT

Attainment Area Analysis

Concrete Batching Point Sources

Source	PM Emission Factor [=] lb/ton Concrete	PTE [=] T/yr	Pre-Baghouse PM Emissions [=] lb/hr	[=] T/yr	Baghouse Control Efficiency	Post-Baghouse PM Emissions [=] lb/hr	[=] T/yr
Cement Silo Loading (Pneumatic)	0.72	110.376	30.4	66.6	99.00%	0.304	0.67
Weigh Hopper Loading (Cement)	0.0051	0.78183	1.3	2.76	99.00%	0.013	0.03
Total		111.2	31.7	69.4		0.317	0.69

Concrete Batching Point Sources

Source	PM_{10} Emission Factor [=] lb/ton Concrete	PTE [=] T/yr	Pre-Baghouse PM_{10} Emissions [=] lb/hr	[=] T/yr	Baghouse Control Efficiency	Post-Baghouse PM_{10} Emissions [=] lb/hr	[=] T/yr
Cement Silo Loading (Pneumatic)	0.46	70.518	19.4	42.6	99.00%	0.194	0.43
Weigh Hopper Loading (Cement)	0.0024	0.36792	0.6	1.30	99.00%	0.006	0.01
Total		70.9	20.0	43.9		0.200	0.44

Generator and Concrete Batching Point Source Emissions

Pollutant	Generator Emisson Factor [=] lb/hp-hr	Annual Usage [=] hr	Emission Rate [=] lb/hr	[=] tpy	PTE @ 8760 [=] tpy
PM	0.0022	4380	0.44	0.97	1.94
PM_{10}	0.0022	4380	0.44	0.97	1.94
CO	0.0067	4380	1.34	2.94	5.88
NOx	0.0310	4380	6.23	13.65	27.31
SO_2	0.0021	4380	0.41	0.90	1.81
TOC	0.0025	4380	0.50	1.09	2.18

Attainment Area Analysis

Total Emissions Rates (lb/hr)		Modeled 1-hr Unity Impact of Generator
PM10	0.44	72.2
SO2	0.41	
NOx	6.23	
CO	1.34	

Total Emissions Rates (lb/hr)		Modeled 1-hr Unity Impact of Cement Silo Baghouse
PM10	0.20	139.2
SO2	0.00	
NOx	0.00	
CO	0.00	

PM10	–	–	–	150 (50)	50 (16)
SO2	–	1300 (1880)	–	365.00	80 (70)
NOx	–	–	–	–	100 (60)
CO	40000 (24400)	–	10000 (4800)	–	–

Figure A.2.1

PM10	–	–	–	23.93	4.79
SO2	–	26.79	–	0.00	0.00
NOx	–	–	–	–	0.00
CO	0.00	–	0.00	–	–

Figure A.2.2

PM10	–	–	–		
SO2	–		–		
NOx	–	–	–	–	
CO		–		–	–

Figure A.2.3

PM10	–	–	–		
SO2	–		–		
NOx	–	–	–	–	
CO		–		–	–

Figure A.2.4

PM10	–	–	–	100.00	34.00
SO2	–	120.00	–	40.00	10.00
NOx	–	–	–	–	40.00
CO	15600.00	–	5200.00	–	–

Figure A.2.5

PM10	–	–	–		
SO2	–		–		
NOx	–	–	–	–	
CO		–		–	–

Figure A.2.6

NON-ATTAINMENT AREAS

Concrete Batch Plant Emission Calculations and Impact Estimates

Concrete Batching Point Sources

Source	PM Emission Factor [=] lb/yd u3 Concrete	Throughput [=] tph	Pre-Baghouse PM Emissions [=] lb/hr	[=] T/yr	Baghouse Control Efficiency	Post-Baghouse PM Emissions [=] lb/hr	[=] T/yr
Cement Silo Loading (Pneumatic)	0.72	35	30.4	66.6	99.00%	0.304	0.67
Weigh Hopper Loading (Cement)	0.0051	35	1.3	2.8	99.00%	0.013	0.03
Total		35	31.7	69.4		0.317	0.69

Source	PM Emission Factor [=] lb/yd u3 Concrete	Throughput [=] tph	Pre-Baghouse PM_{10} Emissions [=] lb/hr	[=] T/yr	Baghouse Control Efficiency	Post-Baghouse PM_{10} Emissions [=] lb/hr	[=] T/yr
Cement Silo Loading (Pneumatic)	0.46	35	19.4	42.6	99.00%	0.194	0.43
Weigh Hopper Loading (Cement)	0.0024	35	0.6	1.3	99.00%	0.006	0.01
Total		35	20.0	43.9		0.200	0.44

Generator and Concrete Batching Point Source Emissions – Non-Attainment Areas

Pollutant	Generator Emisson Factor [=] lb/hp-hr	Annual Usage [=] hr	Emission Rate [=] lb/hr	[=] tpy
PM	2.20E-03	4380	0.44	0.97
PM_{10}	2.20E-03	4380	0.44	0.97
CO	6.68E-03	4380	1.34	2.94
NOx	0.031	4380	6.23	13.65
SO2	2.05E-03	4380	0.41	0.90
TOC	2.47E-03	4380	0.50	1.09

PM10	–	–	–	5.00	1.00
SO2	–	25.00	–	5.00	1.00
NOx	–	–	–	–	1.00
CO	2000.00	–	500.00	–	–

Figure A.3.1

PM10	–	–	–	150.00	50.00
SO2	–	1300.00	–	365.00	80.00
NOx	–	–	–	–	100.00
CO	40000.00	–	10000.00	–	–

Figure A.3.2

PM10	–	–	–	75.00	25.00
SO2	–	650.00	–	182.50	40.00
NOx	–	–	–	–	50.00
CO	20000.00	–	5000.00	–	–

Figure A.3.3

PM10	–	–	–	67.00	23.70
SO2	–	42.00	–	26.00	8.00
NOx	–	–	–	–	32.00
CO	10200.00	–	3400.00	–	–

Figure A.3.4

Total Emissions Rates

PM10	0.44
SO2	0.41
NOx	6.23
CO	1.34

Modeled 1-hr Unity Impact

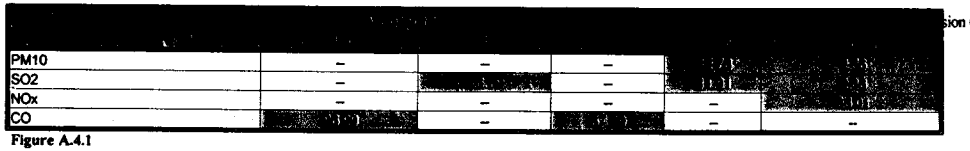
72.2

Total Emissions Rates (lb/hr)

PM10	0.20
SO2	0.00
NOx	0.00
CO	0.00

Modeled 1-hr Unity Impact of Cement Silo Baghouse

139.2



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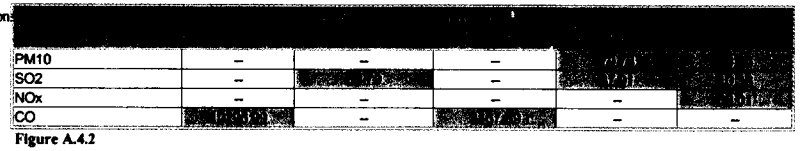

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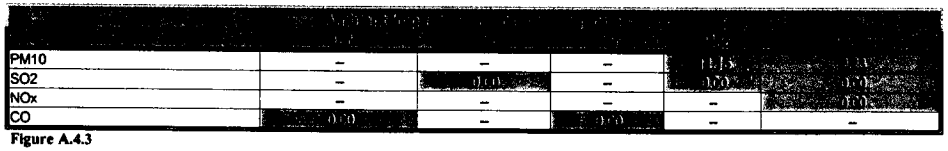

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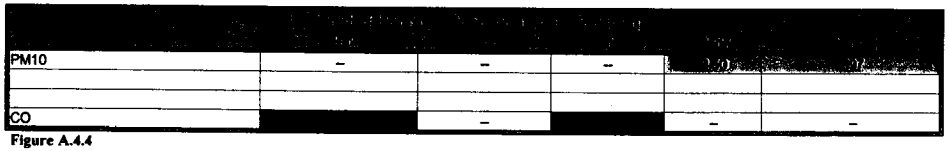

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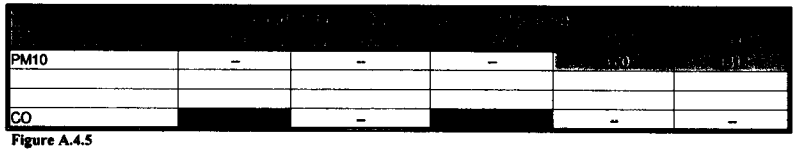

Figure A.4.5

NON-ATTAINMENT AREAS

Concrete Batching Point Sources

Source	PM Emission Factor [=] lb/ton Concrete	Throughput [=] tph	Pre-Baghouse PM_{10} Emissions [=] lb/hr	Pre-Baghouse PM_{10} Emissions [=] T/yr	Baghouse Control Efficiency	Post-Baghouse PM_{10} Emissions [=] lb/hr	Post-Baghouse PM_{10} Emissions [=] T/yr
Cement Silo Loading (Pneumatic)	0.46	35	16.1	151.1	99.00%	0.161	1.51
Weigh Hopper Loading (Cement)	0.0024	35	0.1	0.8	99.00%	0.001	0.01
Total		35	16.2	151.9		0.162	1.52

Generator – Non-Attainment Areas (Adjusted Hours - Collocated)

Pollutant	Generator Emisson Factor [=] lb/hp-hr	Annual Usage [=] hr	Emission Rate [=] lb/hr	Emission Rate [=] tpy
PM	2.20E-03	897	0.44	0.20
PM_{10}	2.20E-03	897	0.44	0.20
CO	6.68E-03	897	1.34	0.60
NOx	0.031	897	6.23	2.80
SO2	2.05E-03	897	0.41	0.18
TOC	2.47E-03	897	0.50	0.22

Generator – Non-Attainment Areas (Adjusted Hours - Not Collocated)

Pollutant	Generator Emisson Factor [=] lb/hp-hr	Annual Usage [=] hr	Emission Rate [=] lb/hr	Emission Rate [=] tpy
PM	2.20E-03	1812	0.44	0.40
PM_{10}	2.20E-03	1812	0.44	0.40
CO	6.68E-03	1812	1.34	1.22
NOx	0.031	1812	6.23	5.65
SO2	2.05E-03	1812	0.41	0.37
TOC	2.47E-03	1812	0.50	0.45

APPENDIX B

SCREEN3 MODEL RUN

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Central Pre-mix P-030121 Silo Modeling

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	0.126000
STACK HEIGHT (M)	=	8.8392
STK INSIDE DIAM (M)	=	0.3719
STK EXIT VELOCITY (M/S)	=	2.1725
STK GAS EXIT TEMP (K)	=	293.1500
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	0.0000
MIN HORIZ BLDG DIM (M)	=	0.0000
MAX HORIZ BLDG DIM (M)	=	0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 0.000 M**4/S**3; MOM. FLUX = 0.163 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	11.26	0.49	0.32	NO
100.	138.1	3	1.0	1.0	320.0	11.26	12.48	7.47	NO
200.	126.2	4	1.0	1.0	320.0	11.26	15.58	8.53	NO
300.	118.2	5	1.0	1.0	10000.0	11.26	16.91	8.73	NO
400.	109.1	6	1.0	1.0	10000.0	11.26	14.65	7.08	NO
500.	108.3	6	1.0	1.0	10000.0	11.26	17.98	8.42	NO
600.	99.21	6	1.0	1.0	10000.0	11.26	21.25	9.71	NO
700.	88.21	6	1.0	1.0	10000.0	11.26	24.47	10.95	NO
800.	77.83	6	1.0	1.0	10000.0	11.26	27.64	12.00	NO
900.	68.86	6	1.0	1.0	10000.0	11.26	30.78	13.00	NO
1000.	61.20	6	1.0	1.0	10000.0	11.26	33.89	13.97	NO
1100.	54.82	6	1.0	1.0	10000.0	11.26	36.97	14.84	NO
1200.	49.39	6	1.0	1.0	10000.0	11.26	40.02	15.67	NO
1300.	44.75	6	1.0	1.0	10000.0	11.26	43.05	16.49	NO
1400.	40.76	6	1.0	1.0	10000.0	11.26	46.05	17.27	NO
1500.	37.31	6	1.0	1.0	10000.0	11.26	49.04	18.04	NO
1600.	34.29	6	1.0	1.0	10000.0	11.26	52.00	18.79	NO
1700.	31.65	6	1.0	1.0	10000.0	11.26	54.94	19.53	NO
1800.	29.32	6	1.0	1.0	10000.0	11.26	57.87	20.25	NO
1900.	27.26	6	1.0	1.0	10000.0	11.26	60.78	20.95	NO
2000.	25.42	6	1.0	1.0	10000.0	11.26	63.68	21.64	NO
2100.	23.85	6	1.0	1.0	10000.0	11.26	66.56	22.22	NO
2200.	22.43	6	1.0	1.0	10000.0	11.26	69.43	22.79	NO

2300.	21.15	6	1.0	1.0	10000.0	11.26	72.28	23.35	NO
2400.	19.99	6	1.0	1.0	10000.0	11.26	75.12	23.90	NO
2500.	18.93	6	1.0	1.0	10000.0	11.26	77.95	24.43	NO
2600.	17.97	6	1.0	1.0	10000.0	11.26	80.77	24.96	NO
2700.	17.08	6	1.0	1.0	10000.0	11.26	83.57	25.48	NO
2800.	16.27	6	1.0	1.0	10000.0	11.26	86.37	25.99	NO
2900.	15.51	6	1.0	1.0	10000.0	11.26	89.15	26.49	NO
3000.	14.82	6	1.0	1.0	10000.0	11.26	91.93	26.99	NO
3500.	12.14	6	1.0	1.0	10000.0	11.26	105.65	28.99	NO
4000.	10.21	6	1.0	1.0	10000.0	11.26	119.17	30.84	NO
4500.	8.752	6	1.0	1.0	10000.0	11.26	132.50	32.58	NO
5000.	7.623	6	1.0	1.0	10000.0	11.26	145.67	34.21	NO
5500.	6.725	6	1.0	1.0	10000.0	11.26	158.69	35.76	NO
6000.	5.996	6	1.0	1.0	10000.0	11.26	171.58	37.24	NO
6500.	5.395	6	1.0	1.0	10000.0	11.26	184.34	38.65	NO
7000.	4.891	6	1.0	1.0	10000.0	11.26	196.99	40.01	NO
7500.	4.478	6	1.0	1.0	10000.0	11.26	209.54	41.17	NO
8000.	4.124	6	1.0	1.0	10000.0	11.26	221.99	42.29	NO
8500.	3.816	6	1.0	1.0	10000.0	11.26	234.34	43.36	NO
9000.	3.547	6	1.0	1.0	10000.0	11.26	246.61	44.40	NO
9500.	3.309	6	1.0	1.0	10000.0	11.26	258.79	45.41	NO
10000.	3.099	6	1.0	1.0	10000.0	11.26	270.90	46.39	NO
15000.	1.842	6	1.0	1.0	10000.0	11.26	388.43	54.89	NO
20000.	1.305	6	1.0	1.0	10000.0	11.26	500.95	60.30	NO
25000.	0.9990	6	1.0	1.0	10000.0	11.26	609.75	64.86	NO
30000.	0.8034	6	1.0	1.0	10000.0	11.26	715.59	68.84	NO
40000.	0.5784	6	1.0	1.0	10000.0	11.26	920.22	74.49	NO
50000.	0.4487	6	1.0	1.0	10000.0	11.26	1117.42	79.20	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

107.	139.2	3	1.0	1.0	320.0	11.26	13.40	8.01	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

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*** SUMMARY OF SCREEN MODEL RESULTS ***
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	139.2	107.	0.

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Central Pre-mix P-030121 Generator Set

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	0.126000
STACK HEIGHT (M)	=	2.4384
STK INSIDE DIAM (M)	=	0.1280
STK EXIT VELOCITY (M/S)	=	51.0026
STK GAS EXIT TEMP (K)	=	762.5944
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	0.0000
MIN HORIZ BLDG DIM (M)	=	0.0000
MAX HORIZ BLDG DIM (M)	=	0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 1.261 M**4/S**3; MOM. FLUX = 4.096 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	27.93	1.38	1.33	NO
100.	63.38	4	8.0	8.0	2560.0	5.63	8.25	4.74	NO
200.	44.99	4	3.5	3.5	1120.0	9.72	15.70	8.75	NO
300.	33.77	4	2.5	2.5	800.0	12.64	22.80	12.44	NO
400.	26.96	4	2.0	2.0	640.0	15.19	29.68	15.70	NO
500.	22.86	4	1.5	1.5	480.0	19.44	36.47	18.93	NO
600.	19.18	4	1.5	1.5	480.0	19.44	42.99	21.76	NO
700.	17.30	4	1.0	1.0	320.0	27.93	49.72	25.11	NO
800.	15.54	4	1.0	1.0	320.0	27.93	56.05	27.76	NO
900.	13.88	4	1.0	1.0	320.0	27.93	62.31	30.35	NO
1000.	13.61	6	1.0	1.0	10000.0	29.09	34.73	15.90	NO
1100.	13.89	6	1.0	1.0	10000.0	29.09	37.74	16.66	NO
1200.	14.00	6	1.0	1.0	10000.0	29.09	40.73	17.41	NO
1300.	13.99	6	1.0	1.0	10000.0	29.09	43.71	18.15	NO
1400.	13.87	6	1.0	1.0	10000.0	29.09	46.67	18.87	NO
1500.	13.69	6	1.0	1.0	10000.0	29.09	49.62	19.57	NO
1600.	13.44	6	1.0	1.0	10000.0	29.09	52.55	20.27	NO
1700.	13.16	6	1.0	1.0	10000.0	29.09	55.46	20.95	NO
1800.	12.85	6	1.0	1.0	10000.0	29.09	58.37	21.62	NO
1900.	12.53	6	1.0	1.0	10000.0	29.09	61.25	22.28	NO
2000.	12.20	6	1.0	1.0	10000.0	29.09	64.13	22.93	NO
2100.	11.84	6	1.0	1.0	10000.0	29.09	66.99	23.48	NO
2200.	11.48	6	1.0	1.0	10000.0	29.09	69.84	24.02	NO
2300.	11.14	6	1.0	1.0	10000.0	29.09	72.68	24.55	NO

2400.	10.81	6	1.0	1.0	10000.0	29.09	75.50	25.07	NO
2500.	10.49	6	1.0	1.0	10000.0	29.09	78.32	25.58	NO
2600.	10.18	6	1.0	1.0	10000.0	29.09	81.12	26.09	NO
2700.	9.879	6	1.0	1.0	10000.0	29.09	83.92	26.58	NO
2800.	9.593	6	1.0	1.0	10000.0	29.09	86.70	27.07	NO
2900.	9.318	6	1.0	1.0	10000.0	29.09	89.47	27.56	NO
3000.	9.053	6	1.0	1.0	10000.0	29.09	92.24	28.03	NO
3500.	7.888	6	1.0	1.0	10000.0	29.09	105.93	29.96	NO
4000.	6.952	6	1.0	1.0	10000.0	29.09	119.41	31.76	NO
4500.	6.189	6	1.0	1.0	10000.0	29.09	132.72	33.45	NO
5000.	5.559	6	1.0	1.0	10000.0	29.09	145.87	35.04	NO
5500.	5.031	6	1.0	1.0	10000.0	29.09	158.87	36.56	NO
6000.	4.584	6	1.0	1.0	10000.0	29.09	171.75	38.00	NO
6500.	4.202	6	1.0	1.0	10000.0	29.09	184.50	39.39	NO
7000.	3.871	6	1.0	1.0	10000.0	29.09	197.14	40.72	NO
7500.	3.589	6	1.0	1.0	10000.0	29.09	209.68	41.86	NO
8000.	3.342	6	1.0	1.0	10000.0	29.09	222.12	42.96	NO
8500.	3.124	6	1.0	1.0	10000.0	29.09	234.46	44.02	NO
9000.	2.929	6	1.0	1.0	10000.0	29.09	246.73	45.05	NO
9500.	2.756	6	1.0	1.0	10000.0	29.09	258.91	46.04	NO
10000.	2.600	6	1.0	1.0	10000.0	29.09	271.01	47.00	NO
15000.	1.623	6	1.0	1.0	10000.0	29.09	388.50	55.41	NO
20000.	1.175	6	1.0	1.0	10000.0	29.09	501.01	60.77	NO
25000.	0.9121	6	1.0	1.0	10000.0	29.09	609.80	65.30	NO
30000.	0.7409	6	1.0	1.0	10000.0	29.09	715.63	69.26	NO
40000.	0.5397	6	1.0	1.0	10000.0	29.09	920.26	74.88	NO
50000.	0.4220	6	1.0	1.0	10000.0	29.09	1117.45	79.56	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

43.	72.20	3	10.0	10.0	3200.0	4.99	5.86	3.57	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	72.20	43.	0.