February 18, 2000

MEMORANDUM

TO: Gwen Fransen, Administrator
Coeur d'Alene Regional Office

FROM: Bill Rogers, Air Quality Engineer
State Technical Services Office

SUBJECT: ***PERMIT TO CONSTRUCT TECHNICAL ANALYSIS***
P-990147, Acme Materials & Construction, Portable
(Standard Hot-Mix Asphalt Plant Permit to Construct No. 777-00225; Including Aggregate, Asphalt, and Concrete Production when Collocated in Attainment Areas)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

Acme Materials & Construction (Acme) is proposing to modify a portable hot-mix asphalt (HMA) plant to be operated in both attainment and nonattainment areas within the state of Idaho. The PTC crafted for this modification 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 HMA's maximum hourly throughput is three hundred tons per hour (300 T/hr) and the facility includes a 1000-kW electrical generator set. The HMA facility will be initially located near Post Falls, Idaho.

SUMMARY OF EVENTS

On November 10, 1999, Acme submitted a PTC application to modify PTC #777-00058. During the 30-day application completeness evaluation, DEQ staff discovered that the hot-mix asphalt (HMA) plant operating at Acme's Rathdrum, Idaho facility is different than what is permitted. DEQ staff informed Acme of the discrepancy and asked for clarification. Meanwhile, Acme's source file was reviewed to see if it contained any information concerning what may have happened. Here's what was discovered. On July 13, 1998, Acme submitted a PTC application for what appeared to be the construction of a new portable Gencor Industries Model 10332 HMA plant. DEQ processed the permit application as such and subsequently issued PTC #777-00225 for the construction of the Gencor HMA plant. This however was not Acme's intent. Acme proposed to replace the existing Cedarapids HMA plant at their Rathdrum facility with the Gencor HMA plant and relocate the Cedarapids plant to the state of Washington. Upon receipt of PTC #777-00225, Acme constructed the Gencor HMA plant at their Rathdrum site and physically removed and relocated the Cedarapids HMA plant. On December 9, 1999, Acme submitted a letter that concurred with this determination. The application was then determined complete on December 15, 1999.

To clear up all this confusion, a portable source PTC has been drafted for the Cedarapids HMA plant. Acme has indicated they proposes to relocate the plant in Idaho this spring and need a PTC in order to construct it. A modified PTC has been drafted for Acme's Rathdrum facility. None of the emissions units there are portable, therefore, the permit number has been changed from 777-00058 to 055-00048 to reflect the emissions units are stationary. PTC #055-00048 was drafted with the assumption that Acme operates a Gencor Model 10332 HMA plant and the rock crushing and concrete batching equipment identified in their original permit application.

This memorandum supports the technical analysis done for a portable Cedarapids HMA plant to be operated within the state of Idaho.

DISCUSSION

1. Process Description

The facility is a portable drum-mix hot-mix asphalt plant used for the production of asphaltic concrete. The dryer burner is permitted to be fired on fuel oil, natural gas, or propane gas.

The Standard PTC requested will allow this hot-mix asphalt facility to collocate and simultaneously operate with one other portable plant (i.e., rock crusher, hot-mix asphalt plant, and/or concrete batch plant) in attainment areas only. It is important to note, the other portable plant must also obtain or already possess a PTC that allows for collocation. Otherwise the combined sources may trigger Title V Operating Permit requirements or PSD. To clarify, during collocated operations, this hot-mix asphalt plant is then part of a single, larger source engaged in the production of either asphalt, concrete and/or aggregate, depending upon which type of portable plant the hot-mix plant is collocated with. While collocated, the two portable plants are now considered to be one source, and the emissions of this single source is the sum of the emissions from the two portable plants. This single, larger source must comply with all applicable federal, state, and local requirements. To maintain compliance, specific requirements and limitations have been included in the Standard PTC for this hot-mix asphalt plant for collocated operations. As described in the following sections of this Technical Memorandum, specific conservative assumptions and calculations were made to determine these Standard PTC collocation requirements. For this reason, the permit for the other portable plant with which this hot-mix asphalt plant will collocate must also contain specific collocation requirements based on the same conservative assumptions and calculations used in this Standard PTC.

2. Equipment Listing

This standard permit analysis includes the following equipment as submitted in the application:

2.1 Portable Hot-Mix Asphalt Plant

Manufacturer/Model:	Cedarapids/8830 ADM
Type:	Drum-Mix
Throughput Capacity (T/hr):	300
Burner Fuel Type:	Natural Gas/Propane
Dryer heat Input (MMBtu/hr):	110

2.2 Air Pollution Control Device

Type:	Wet Scrubber
Manufacturer:	Cedarapids
Model:	8828 ADM

2.3 HMA Stack Information

Stack Height (ft):	25
Stack Diameter (ft):	4.17
Exhaust Gas Flowrate (acfm):	25,500
Stack Exhaust Temp (^{o}F):	130

2.4 Generator

Manufacturer/Model:	Caterpillar

Rated Power Output (kW):	1000
Fuel Type (gasoline/diesel):	Diesel
Fuel Usage (gal/hr):	72
Stack Height (ft):	13.5
Stack Diameter (ft):	0.67
Exhaust Gas Flowrate (acfm):	8,525
Stack Exhaust Temp (°F):	888

3. Area Classification

The HMA facility is a portable source and may operate in both attainment and nonattainment areas throughout the state of Idaho.

4. Emission Estimates

Emission estimates for this HMA facility were calculated using a Lotus spreadsheet and emission factors obtained from AP-42, Section 11.1, 1/95 edition. For purposes of maximum flexibility, the spreadsheet calculates the potential to emit (PTE) based on the worst-case emission factor of all possible fuels to be used at the hot-mix plant (diesel fuel oils, propane, and natural gas). The following air pollutant emissions are calculated by the spreadsheet: PM (particulate matter), PM-10 (particulate matter with an aerodynamic diameter of less than or equal to ten [10] microns), NOx (oxides of nitrogen), SO_2 (sulfur dioxide), and CO (carbon monoxide). In calculating the PTE for each pollutant, the spreadsheet solves for the most limiting pollutant which will give the facility a PTE of less than 100 tons per any consecutive 12-month period (T/yr) (i.e., 99 T/yr). In addition, allowable operational limits for the facility, which corresponds to the PTE <100 T/yr, are given as part of the spreadsheet output. A copy of the spreadsheet showing all calculations and results is presented as Appendix A of this memo.

For collocated operations, a conservative approach is taken by limiting the emissions of each of the collocated units to half of the levels allowed when operating alone. Then the combined emissions of the two collocated sources will be within the allowable levels. See the information below for a more detailed description. This approach is designed to result in acceptable throughput limits for most collocation situations. In cases where the throughput limits are too restrictive, a site-specific analysis and permit amendment may be completed.

In summary, the emission estimates for this facility assume 300 T/hr throughput to a drum-mix HMA plant, one natural gas/propane -fired dryer, one diesel-fired electrical generator set rated at 1,000 kW, and fugitive dust emissions from specified sources (see the spreadsheet). The most limiting pollutant which gives the facility a PTE of 99 T/hr is NOx.

4.1 Collocated Operations in Attainment Areas

Standard PTCs will only allow collocation with one other portable source (i.e., rock crushing plant, hot-mix asphalt plant, or concrete batch plant) which has also received a Standard PTC that specifically allows collocation. When a combination of one portable hot-mix asphalt unit and one other portable unit are operated at a single location, the emissions of both units must be added together when determining PTE. Consistent with the approach taken for attainment area operations, the spreadsheet inherently limits the combined emissions of the two portable units to below certain triggering levels (i.e., PSD and Title V thresholds) by limiting the maximum throughput of each. For collocated operations, half of the attainment area triggering levels are used as limits for calculating throughput for each source. The hot-mix asphalt plant throughput is then established based on the most limiting pollutant or pollutants (i.e., the pollutant whose emission rate is closest to 49.5 T/yr). For collocated

attainment area operations, the most limiting pollutant which gives the hot-mix asphalt facility a PTE of 49.5 T/yr is NOx.

5. Modeling

Modeling of the asphalt plant stack emissions and the electrical generator set emissions was conducted using EPA-approved SCREEN 3 computer-run model. The maximum one (1) hour impact from the dryer stack was calculated to be 13.11 ug/m^3 using a 1 lb/hr unity emission rate input to the model. The maximum one (1) hour impact from the electrical generator set was calculated to be 10.19 ug/m3, also using a 1 lb/hr unity input. The spreadsheet calculates the ambient impact for each air pollutant (PM, PM-10, NOx, SO2, and CO) based on the calculated lb/hr emission rate, averaging periods and background concentrations. The spreadsheet solves for the most limiting pollutant in attainment areas and gives appropriate operational limits which protects the applicable National Ambient Air Quality Standard (NAAQS) as defined in IDAPA 16.01.01.577. In addition, the spreadsheet also calculates the most limiting pollutant in nonattainment areas and gives operational limits to protect applicable significant contribution requirements as defined in IDAPA 16.01.01.006.89. All SCREEN modeling output files are presented as Appendix B of this memo. Spreadsheet impact calculations and results are presented as Appendix A.

For collocated operations in attainment areas, operation of the hot-mix asphalt plant and its generator (if used) are limited as needed so that the modeled impacts will be half of the available allowable ambient impact. Likewise for collocated operations, the modeled impacts of the other portable facility will also be limited to half of the available allowable ambient impact so that the combined emissions of the two collocated sources will remain within the NAAQS. Using the 24-hour NAAQS standard for PM-10 (attainment area) as an example, one half of the allowable available impact would be equal to 32 μg/m^3, as follows:

$$32\ \mu g/m^3 = 0.5 \times [150\ \mu g/m^3 - 86\ \mu g/m^3],$$

where 150 μg/m^3 is the 24-hour average standard and 86 μg/m^3 is the conservative statewide 24-hour average background value. Then operation of the HMA plant and its generator (if used) would be limited as needed, based on the specific ambient impact modeling, so that the modeled 24-hour concentration does not exceed 32 μg/m^3 at or beyond the facility's property boundary. This approach is designed to result in acceptable operational limits for most collocation situations. In cases where these limits are too restrictive, a site-specific analysis and permit amendment may be completed. If a generator is used, the modeling estimates are included as Appendix B.

6. Facility Classification

Hot-mix asphalt plants (including collocated operations producing asphalt, concrete, and aggregate) are not designated facilities, as defined in IDAPA 16.01.01.006.27. This facility is not a major facility as defined in IDAPA 16.01.01.006.55 and IDAPA 16.01.01.008.10. The SIC code for this hot-mix asphalt facility is 2951. The AIRS facility classification for this facility is "A2" because the uncontrolled potential to emit is greater than 100 T/yr.

7. Regulatory Review

The following rules and regulations were reviewed for this permit analysis:

IDAPA 16.01.01.201	Permit to Construct
IDAPA 16.01.01.202	Application Procedures
IDAPA 16.01.01.203	Permit Requirements for New and Modified Stationary Sources

IDAPA 16.01.01.209	Procedures for Issuing Permits
IDAPA 16.01.01.211	Conditions for Permits to Construct
IDAPA 16.01.01.212	Obligation to Comply
IDAPA 16.01.01.577	Ambient Air Quality Standards
IDAPA 16.01.01.625	Visible Emissions
IDAPA 16.01.01.650	Rules for Control of Fugitive Dust
IDAPA 16.01.01.725	Rules for Sulfur Content of Fuels
IDAPA 16.01.01.805	Rules for the Control of Hot-Mix Asphalt Plants

This facility is an affected facility and is subject to regulation in accordance with 40 CFR Part 60, Subpart I, "Standards of Performance for Hot-Mix Asphalt Facilities."

8. Permit Coordination

This hot-mix asphalt facility is not a major facility as defined by IDAPA 16.01.01.006.55 and IDAPA 16.01.01.008.10. However, the applicant has indicated that it is an NSPS-affected facility (40 CFR Part 60, Subpart OOO), and as such, it is a Tier I source as defined by IDAPA 16.01.01.006.104(b). In accordance with IDAPA 16.01.01.301.02(b), these Tier I sources not located at major facilities do not require a Tier I operating permit until June 1, 2001, unless an earlier date is required by an applicable standard or EPA determines that no Tier I operating permit is required.

9. AIRS Information

AIRS forms are included as Appendix C of this technical analysis.

FEES

This facility is not a major facility as defined in IDAPA 16.01.01.008.10. Therefore, registration and registration fees in accordance with IDAPA 16.01.01.526 are not applicable.

RECOMMENDATION

Based on review of application materials and state and federal rules and regulations, staff recommend that Acme Materials & Construction be issued a PTC for a portable HMA facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD PTC requirements.

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cc: P. Rayne, AFS
T. Trumbull, AQP
R. Wilkosz, AQP
Bill Rogers, TSO
Database/Source File (777-000252)
RO COF
RO Source File
Pocatello RO
Idaho Falls RO
Lewiston RO
Coeur d'Alene RO
Boise RO
Twin Falls RO

APPENDIX A

Emission Estimates

Acme Materials & Construction
P990147
February 2000

INPUT SECTION - enter info in highlighted areas only

Company:	Acme Materials & Construction	
Permit Engineer:	Bill Rogers	
Date:	01/14/00	
Filename:	990147a.wk4	
Enter the HMA Plant Type:	B	(A = Batch Mix Hot Mix Asphalt Plant) (B = Drum Mix Hot Mix Asphalt Plant)
Dryer Fuel Type:	A	(A = Natural Gas-Fired Dryer) (B = Oil-Fired Dryer)
Enter Dryer Stack Flow Rate:	25,500	[=] actual cubic feet per minute (acfm)
Enter Dryer Stack Temperature:	330	[=] temperature (oF)
Enter Dryer Stack Moisture:	18.00	[=] moisture as % (Default 18 wt%)
Enter Dryer Stack Pressure:	29.92	[=] stack pressure (Default 29.92 "Hg)
Calculated Corrected Flow Rate:	18,711	[=] dry standard cubic feet per minute (dscfm)
Enter HMA Maximum Capacity:	300	[=] Tons/hr (Asphalt Throughput)
Enter HMA Modeled Concentration:	13.11	[=] µg/m3 (1-hr concentration fg: 1 Hour)
Is a PM performance test required for this HMA plant?	Y	Y or N (based on 40 CFR 60.90 Requirements)
Does Plant Require a Generator?	Y	Y or N
Enter Generator Size:	1000	[=] kW
Enter Units:	B	(A = Horsepower or B = Kilowatts)
Calculated Generator Size:	1340.20	[=] Horsepower
Enter Generator Fuel Type:	A	(A = Diesel-Fired Generator) (B = Gasoline-Fired or Dual-Fired Generator)
Enter Generator Fuel Useage:	72	[=] gal/hr
Calculated Generator Heat Output:	9.88	[=] MMBtu/hr
Enter gen. modeled concentration:	10.19	[=] µg/m3 (1-hr concentration fg: 1 Hour)

777-00223
Cedar Rapids 8830 ADM

SPREADSHEET DATA - information used by spreadsheet

State Wide Background Concentrations for Criteria Air Pollutants

	1-hr	3-hr	8-hr	24-hr	Annual
PM-10				86	32.7
CO	11400		5130		
NOx					40
SOx		543		144	23.5

Parameters used in the Fugitive Emission Calculations

Mean Wind Speed (U)	10	[=] mph
Material Moisture Content (M)	2.5	[=] %
Particle Size Multiplier (k)		
PM-10 (<10 µm)	0.35	[=] dimensionless
Emission Factors		
PM-10 (<10 µm)	0.0028	[=] lb/T
PM	0.0053	[=] lb/T

Notes: 1. EF = k*0.0032*(U/5)^1.3/(M/2)^1.4
Drop-Point Equation, Rating "A" AP-42, 5th Ed. p.13.2.4-3.
Assumptions: Wind Speed = 10 mph; Moisture = 2.5%; and Aggregate = 94% of product.

FACILITY CLASSIFICATION INPUT

Enter Annual Emission Limit:	100	[=] T/yr

Note: Use 100 T/yr for Title V Limitation
Use 250 T/yr for PSD Limitation
For the standard HMA permit, use 100 T/yr.

PERMIT REQUIREMENTS SECTION - enforceable permit limits

Facility Classification: A2

Non-attainment Area	Allowable Emission Limits	
HMA Dryer Stack:	6.4 lb/hr of PM	NA T/yr
Generator:	3.3 hr/day 1,219.03 hr/year	NA T/yr
HMA Plant Throughput Limits:	1,002 T/day	365,709 T/yr

Attainment Area	Allowable Emission Limits	
HMA Dryer Stack:	6.4 lb/hr of PM	22.6 T/yr of NOx
Generator:	24.0 hr/day 5,029.25 hr/year	76.4 T/yr of NOx
HMA Plant Throughput Limits:	NA T/day	1,508,774 T/yr

Collocated Attainment Areas	Allowable Emission Limits	
HMA Dryer Stack:	6.4 lb/hr of PM	11.3 T/yr of NOx
Generator:	22.8 hr/day 2,514.62 hr/year	38.2 T/yr of NOx
HMA Plant Throughput Limits:	6,848 T/day	754,387 T/yr

	CO 1-hr Standard	SO2 3-hr standard	CO 8-hr Standard
	minutes/1-hr	hr/3-hr	hr/8-hr
	60.0	3.0	8.0

INPUTS TO PERMIT TO CONSTRUCT (PTC)		Value	Units
Section B "Attainment Area When Not Collocated"			
Section B.1.1 Facility Throughput Limits:	Annual Throughput Limit	1,508,774	T/yr
	<<OR>>		
	Daily Throughput Limit	NA	T/day
	Annual Throughput Limit	1,508,774	T/yr
Section B.1.3 Generator Hours of Operation:	Annual Hours of Operation	5,029	hr/year
	<<AND/OR>>		
	Daily Hours of Operation	24	hr/day
Section C "Attainment Area When Collocated"			
Section C.1.3 Facility Throughput Limits:	Annual Throughput Limit	754,387	T/yr
	<<OR>>		
	Daily Throughput Limit	6,848	T/day
	Annual Throughput Limit	754,387	T/yr
Section C.1.4 Generator Hours of Operation:	Annual Hours of Operation	2,515	hr/year
	<<AND/OR>>		
	Daily Hours of Operation	22.8	hr/day
Section D "Nonattainment Area"			
Section D.1.1 Facility Throughput Limits:	Annual Throughput Limit	365,709	T/yr
	<<OR>>		
	Daily Throughput Limit	1,002	T/day
	Annual Throughput Limit	365,709	T/yr
Section D.1.3 Generator Hours of Operation:	Annual Hours of Operation	1,219	hr/year
	<<AND/OR>>		
	Daily Hours of Operation	3.3	hr/day

DRYER EMISSION RATE CALCULATIONS

Pollutant	DRYER STACK Emission Factor [=] lb/ton	Emission Rate (Uncontrolled) [=] lb/hr	Emission Rate (Controlled) [=] lb/hr
Total PM	19.00	5,700.00	6.42
Total PM-10	[=] gr/dscf 0.04	1,290.00	6.42
CO	[=] lb/ton 0.056	16.80	16.80
NO_x	0.030	9.00	9.00
SO_2	0.003	0.99	0.99

1664A emission factors for CO, NO_x, SO_2 and uncontrolled PM & PM-10 are from AP-42 Section 11.1. Controlled PM & PM-10 is from the NSPS 0.04 gr/dscf.

GENERATOR EMISSION RATE CALCULATIONS

Pollutant	GENERATOR STACK Emission Factor (=) lb/MMBtu	Emission Rate (Uncontrolled) [=] lb/hr	Emission Rate (Controlled) [=] lb/hr
Total PM	0.07	0.68	0.68
Total PM-10	0.06	0.56	0.56
CO	0.84	7.94	7.94
NO_x	3.10	30.37	30.37
SO_2	0.51	4.95	4.95

Generator emission factors are from AP-42 Section 3.3 and 3.4.

MODELING ANALYSIS CALCULATIONS FOR ATTAINMENT AREAS

Pollutant	Allowable Impacts: NAAQS Hours of Operation [=] hr/day	Hours of Operation [=] hr/year	Other a,b,c	<100 TPY Hours of Operation [=] hr/year	Hours of Operation [=] hr/day	Hours of Operation [=] hr/year	Permitted Impacts: NAAQS Calculated 24-hr Impact [=] µg/m³	Calculated Annual Impact [=] µg/m³	Other a,b,c	<100 TPY Calculated Emissions [=] ton/year
PM	N/S	N/S			24.0	5,029				
PM-10	24.0	8,760		8,760	Based on:	Based on:	35.93	4.13		21.84
CO	N/S	N/S		8,005	None	NO_x	120.44	13.83		62.10
CO a			1.0				—	—	301.11	
CO b			8.0		Limited to 99.0 T/yr.		—	—	210.78	
NO_x	N/S	8,760		5,029			—	19.63		99.00
SO_2	24.0	8,760		8,760			25.36	2.91		14.93
SO_2 c			3.0				—	—	57.05	

MODELING ANALYSIS CALCULATIONS FOR NONATTAINMENT AREAS

Pollutant	Allowable Impacts: NAAQS Hours of Operation [=] hr/day	Hours of Operation [=] hr/year	Other a,b,c	<100 TPY Hours of Operation [=] hr/year	Hours of Operation [=] hr/day	Hours of Operation [=] hr/year	Permitted Impacts: NAAQS Calculated 24-hr Impact [=] µg/m³	Calculated Annual Impact [=] µg/m³	Other a,b,c	<100 TPY Calculated Emissions [=] ton/year
PM	N/S	N/S			3.3	1,219				
PM-10	3.3	1,219		8,760	Based on:	Based on:	5.00	1.00		5.79
CO	N/S	N/S		8,005	PM-10	PM-10	16.76	3.35		15.08
CO a			1.0				—	—	301.11	
CO b			8.0		Limited by Significant Cont.		—	—	87.99	
NO_x	N/S	8,760		5,029			—	4.76		24.00
SO_2	24.0	8,760		8,760			1.57	0.71		3.62
SO_2 c			3.0				—	—	57.05	

FUGITIVE EMISSION CALCULATIONS FOR ATTAINMENT AREAS

	PM	PM-10
Pre-Dryer Source Emissions ([~] lb/hr)		
Loader -> Cold Aggregate Bin	1.50	0.57
Cold Aggregate Bin -> Conveyor	1.50	0.57
Conveyor -> Drum Dryer	1.50	0.57
Total Pre-Dryer Source Emissions	4.51	1.71
Post-Dryer Source Emissions		
Screening Process	NA	NA
Screen -> Hot Bins	NA	NA
Hot Bins -> Weigh Hopper	NA	NA
Weigh Hopper -> Pug Mill	NA	NA
Total Post-Dryer Source Emissions	NA	NA
Scavenger Control Efficiency	NA	NA
Total Uncontrolled Emissions ([~] lb/hr)	4.51	1.71
Total Uncontrolled Emissions ([=] T/yr)	16.34	4.19
Total Controlled Emissions ([~] lb/hr)	4.51	1.71
Total Controlled Emissions ([~] T/yr)	16.34	4.19

Source: National Asphalt Pavement Association
a CO 1-hr Averaging Period
b CO 8-hr Averaging Period
c SO2 3-hr Averaging Period

FUGITIVE EMISSION CALCULATIONS FOR NONATTAINMENT AREAS

	PM	PM-10
Pre-Dryer Source Emissions ([~] lb/hr)		
Loader -> Cold Aggregate Bin	1.50	0.57
Cold Aggregate Bin -> Conveyor	1.50	0.57
Conveyor -> Drum Dryer	1.50	0.57
Total Pre-Dryer Source Emissions	4.51	1.71
Post-Dryer Source Emissions		
Screening Process	NA	NA
Screen -> Hot Bins	NA	NA
Hot Bins -> Weigh Hopper	NA	NA
Weigh Hopper -> Pug Mill	NA	NA
Total Post-Dryer Source Emissions	NA	NA
Scavenger Control Efficiency	NA	NA
Total Uncontrolled Emissions ([~] lb/hr)	4.51	1.71
Total Uncontrolled Emissions ([~] T/yr)	2.75	1.04
Total Controlled Emissions ([~] lb/hr)	4.51	1.71
Total Controlled Emissions ([~] T/yr)	2.75	1.04

SPREADSHEET SUMMARY - results of emission and modeling rates for all pollutants

ATTAINMENT & UNCLASSIFIABLE AREAS			NONATTAINMENT AREAS		
Uncontrolled	Controlled	Dryer	Uncontrolled	Controlled	
14333.4 T/yr	16.1 T/yr	PM	3474.2 T/yr	3.9 T/yr	
3243.9 T/yr	16.1 T/yr	PM-10	786.3 T/yr	3.9 T/yr	
42.2 T/yr	42.2 T/yr	CO	10.2 T/yr	10.2 T/yr	
22.6 T/yr	22.6 T/yr	NOx	5.5 T/yr	5.5 T/yr	
2.5 T/yr	2.5 T/yr	SO2	0.6 T/yr	0.6 T/yr	
		Generator			
1.7 T/yr	1.7 T/yr	PM	0.4 T/yr	0.4 T/yr	
1.4 T/yr	1.4 T/yr	PM-10	0.3 T/yr	0.3 T/yr	
20.0 T/yr	20.0 T/yr	CO	4.8 T/yr	4.8 T/yr	
76.4 T/yr	76.4 T/yr	NOx	18.5 T/yr	18.5 T/yr	
12.4 T/yr	12.4 T/yr	SO2	3.0 T/yr	3.0 T/yr	
		Fugitives			
11.3 T/yr	11.3 T/yr	PM	2.7 T/yr	2.7 T/yr	
4.3 T/yr	4.3 T/yr	PM-10	1.0 T/yr	1.0 T/yr	
		Total 1			
14346.4 T/yr	29.2 T/yr	PM	3477.4 T/yr	7.1 T/yr	
3249.6 T/yr	21.8 T/yr	PM-10	787.7 T/yr	5.3 T/yr	
62.2 T/yr	62.2 T/yr	CO	15.1 T/yr	15.1 T/yr	
99.0 T/yr	99.0 T/yr	NOx	24.0 T/yr	24.0 T/yr	
14.9 T/yr	14.9 T/yr	SO2	3.6 T/yr	3.6 T/yr	
3249.6 [=] T/yr of PM-10	99.0 [=] T/yr of NOx	Title V PTE Summary 2	787.7 [=] T/yr of PM-10	24.0 [=] T/yr of NOx	
14346.4 [=] T/yr of PM	99.0 [=] T/yr of NOx	Facility PTE Summary	3477.4 [=] T/yr of PM	24.0 [=] T/yr of NOx	
Enforceable Limits – Attainment Areas			Enforceable Limits – Non-Attainment Areas		
24.0 lb/day	5,019 lb/yr		3.3 lb/day	1,219 lb/yr	
Dryer Controlled Emission Rates		Emission Limits	Dryer Controlled Emission Rates		
6.4 lb/hr	16.1 T/yr	PM/PM-10	6.4 lb/hr	3.9 T/yr	
16.8 lb/hr	42.2 T/yr	CO	16.8 lb/hr	10.2 T/yr	
9.0 lb/hr	22.6 T/yr	NOx	9.0 lb/hr	5.5 T/yr	
1.0 lb/hr	2.5 T/yr	SO2	1.0 lb/hr	0.6 T/yr	
Generator Controlled Emission Rates		Emission Limits	Generator Controlled Emission Rates		
0.6 lb/hr	1.4 T/yr	PM-10	0.6 lb/hr	0.3 T/yr	
7.9 lb/hr	20.0 T/yr	CO	7.9 lb/hr	4.8 T/yr	
30.4 lb/hr	76.4 T/yr	NOx	30.4 lb/hr	18.5 T/yr	
4.9 lb/hr	12.4 T/yr	SO2	4.9 lb/hr	3.0 T/yr	

1 Total is the dryer, generator and fugitives added together for total PTE.
2 Title V PTE summary does not account for PSI, only PM-10.

Attainment Area - Collocated Units - Calculations

Collocation Ambient Air Quality Standards - Calculations

Pollutant	(1-hr, 3-hr, 8-hr, & 24-hr standards are cut in half for collocation) 1-hr	3-hr	8-hr	24-hr	Annual (50% Attainment Hours)
PM					
PM-10				-3.930176158	6.517191694
CO	13998.491183		2224.2234281		
NO_x					20.183683606
SO_2		321.447678086		85.143149832	26.394125206
TOC					

Background Concentrations -- Attainment/Non-Classifiable Areas (ug/m3)

Pollutant	1-hr	3-hr	8-hr	24-hr	Annual
PM					
PM-10				86	17.2
CO	11160		5130		
NO_x					40
SO_2		543		144	23.6
TOC					

APPENDIX B

Modeling

Acme Materials & Construction
P990147
February 2000

0

1/14/00

0

6:59:46
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

990147a - 777-00225 - Cedarapids HMA

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	7.6200
STK INSIDE DIAM (M)	=	1.2802
STK EXIT VELOCITY (M/S)	=	9.3501
STK GAS EXIT TEMP (K)	=	327.5944
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

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

BUOY. FLUX = 3.950 M**4/S**3; MOM. FLUX = 32.054 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
10.	.0000	1	1.0	1.0	320.0	67.65	5.92	5.12	NO
100.	12.34	4	20.0	20.0	6400.0	7.98	8.24	4.72	NO
200.	11.02	4	10.0	10.0	3200.0	12.18	15.66	8.67	NO
300.	9.146	4	8.0	8.0	2560.0	14.28	22.71	12.2	

8	NO								
	400.	7.873	4	5.0	5.0	1600.0	19.63	29.65	15.6
5	NO								
	500.	7.100	4	4.0	4.0	1280.0	22.63	36.40	18.7
9	NO								
	600.	6.408	4	3.5	3.5	1120.0	24.77	43.00	21.7
7	NO								
	700.	5.847	4	3.0	3.0	960.0	27.63	49.52	24.7
1	NO								
	800.	5.386	4	2.5	2.5	800.0	31.63	56.00	27.6
3	NO								
	900.	4.931	4	2.0	2.0	640.0	37.63	62.47	30.6
9	NO								
	1000.	4.628	4	2.0	2.0	640.0	37.63	68.66	33.2
2	NO								

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:

120.	13.11	4	20.0	20.0	6400.0	7.98	9.82	5.5
6 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	13.11	120.	0.

APPENDIX C

AIRS Information

Acme Materials & Construction
P990147
February 2000

ABBREVIATED AIRS DATA ENTRY SHEET - Concrete Batch Plant

Name of Facility: Acme Materials & Construction

AIRS/Permit #: 777-00225

Permit Issue Date: 2/18/00

*Source/Emissions Unit Name (25 spcs) (Please use name as indicated in permit)	SCC # (8 digit #)	Air Program (SIP/NESHAP/ NSPS/PSD)
* Flyash/Cement to Silo	30501199	SIP
Diesel Generator	20200401	
Agg Handling/Piles	30500204	
Transit Mix Truck Loading	30501110	
Fugitives	30588801	
Property Boundary	30588801	
Note: Pat, please replace current AIRs information w/ the information on this sheet.		

RETURN TO PAT RAYNE

AIRS-PT.LST (9/95)