October 27, 2000

MEMORANDUM

TO: Jim Johnston, Administrator
Idaho Falls Regional Office

FROM: Ken Hanna, Air Quality Engineer KH
Technical Services Office

SUBJECT: ***PERMIT TO CONSTRUCT TECHNICAL ANALYSIS***
P-000531, Burns Concrete, Inc., Portable
(Standard Concrete Batch Plant Permit to Construct No. 777-00274; Including Aggregate, Asphalt, and Concrete Production when Collocated in Attainment Areas)

PURPOSE

The purpose of 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 (PTC).

PROJECT DESCRIPTION

Burns Concrete, Inc. is proposing to commence construction of a portable concrete batching facility. Burns Concrete, Inc. 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. Note that the Standard PTC for a portable concrete batching facility also 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 one hundred and twenty cubic yards per hour (120 cy/hr). Electricity may be supplied to the facility by either the local utility or a 400-kilowatt (400-kW), diesel-fired, electrical generator set..

SUMMARY OF EVENTS

On October 11, 2000, the Idaho Department of Environmental Quality received an application from Burns Concrete, Inc. for a concrete batch plant to be initially located in Butte County.

DISCUSSION

1. Process Description

Concrete is produced by combining water, sand and gravel, and Portland cement. A 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 supply, 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 stockpiles for varying job specifications. Cement is delivered by truck and pneumatically transferred to its storage silo. A baghouse is mounted above the silo to capture cement as air is displaced in the silo. 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 gasoline-fired or diesel-fired generator.

After all the storage bins are filled, 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 pre-determined 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 a measure of dust control. Sometimes, a separate baghouse is used to capture cement 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.

The Standard PTC requested will allow this concrete batching facility to collocate and simultaneously operate with one other portable plant (i.e., rock crusher, hot-mix asphalt, or concrete batch plant) in attainment areas. It is important to note that during collocated operations, this concrete batching facility is then part of a single, larger source engaged in the production of either concrete, aggregate and/or asphalt, depending upon which type of portable plant the concrete batching facility 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 concrete batching facility 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 concrete batching facility will collocate must also contain specific collocation requirements based on the same conservative assumptions and calculations used in this Standard PTC.

2. Equipment Listing

The analysis upon which this facility is permitted assumes the following equipment would be used:

2.1 Portable Concrete Batch Plant

Manufacturer	-	Johnson-Ross
Model	-	Bandit BTRR 12CY
Maximum Capacity (cy/hr)	-	120

2.2 Cement Storage Silo Baghouse

Stack Height (ft)	-	65
Stack Diameter (ft)	-	1.45
Exit Air Flowrate (acfm)	-	577
Capture Efficiency	-	99.95% @ 1 micron

$\left(120\ ^{cy}/_{hr}\right)\left(8760\ ^{hr}/_{yr}\right) = 1,051,000\ ^{cy}/_{yr}$

2.3 Cement Weigh Bin Baghouse

Stack Height (ft)	-	26
Stack Diameter (ft)	-	0.92
Exit Air Flowrate (acfm)	-	281
Capture Efficiency	-	99.95% @ 1 micron

2.4 Generator

Manufacturer/Model:	-	ONAN 350 DQBB
Rated Power Output (kW or hp)	-	535 hp (up to 400 kW)
Stack Diameter (ft)	-	0.5
Stack Height (ft)	-	9.42
Exhaust Gas Flowrate (acfm)	-	2345
Exhaust Gas Temperature (°F)	-	920
Fuel Type (diesel or gasoline)	-	Diesel
Fuel Usage (gallons per hour)	-	21

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.

3. Area Classification

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

4. Emission Estimates

A spreadsheet has been developed specifically for concrete batching facilities to determine their potential to emit (PTE). PTE is used to determine if Prevention of Significant Deterioration (PSD) or Title V Operating Permit requirements apply. In determining PTE, the spreadsheet uses production data supplied by the applicant and emission factors from EPA's AP-42. For concrete batching facilities, PTE is based on emissions from the cement storage silo baghouse, and the cement weigh bin baghouse (if one is used). If the facility includes a generator, its emissions are also included in the determination of the facility's PTE. Because these facilities are not designated facilities or NSPS-affected facilities, fugitive emissions from concrete batch plants do not count toward determining PTE. This facility's PTE is thirty-two and eight tenths tons per any consecutive 12-month period (32.8 T/yr) based on NOx emissions.

The spreadsheet inherently limits emissions below certain triggering levels (i.e., PSD and Title V thresholds) by limiting throughput. If a generator is not used, throughput is solely limited to limit a facility's PTE below 99 T/yr of PM-10 emissions. If a generator is used,

throughput is limited to protect the NAAQS and it is limited to keep emissions below the 99 T/yr triggering level. The throughput limits for this facility are presented below. The spreadsheet used to calculate the PTE and throughput limit is included as Appendix A of this document.

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.

4.1 Attainment Area Operations

In the standard permit, two throughput limit options are available to choose from. One option limits annual throughput (annual is any consecutive 12-month period) only and the other option limits daily and annual throughput. The annual throughput limit option is chosen to limit emissions to 99 T/yr or less. This option is most likely chosen if the facility does not include a generator. The daily and annual limit is chosen when throughput has to be limited to protect the 24-hr PM-10 NAAQS and to limit facility emissions to 99 T/yr or less.

For this concrete batch plant, the concrete throughput is unlimited while operating in any attainment or unclassifiable area.

4.2 Nonattainment Area Operations

For facilities that use a generator in a PM-10 nonattainment area or proposed PM-10 nonattainment area, throughput is limited to protect the PM-10 nonattainment area 24-hour and annual ambient impact limits (5.0 µg/m3 and 1.0 µg/m3, respectively). When a generator is not used, throughput is limited to keep PM-10 emissions below 99 T/yr.

For this concrete batch plant, the concrete throughput is limited to two thousand three hundred and sixty-six cubic yards per day (2366 cy/day) and eight hundred sixty three thousand and six hundred cubic yards per consecutive 12-month period (863,600 cy/yr) while operating in PM-10 nonattainment area or proposed PM-10 nonattainment area.

4.3 Collocated Operations in Attainment Areas

Standard PTCs will only allow collocation with one other portable source (i.e., rock crusher, 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 concrete batching 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 concrete batch 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).

In the standard permit, two throughput limit options are available for collocated-attainment area operations. One is for an annual limit (annual is any consecutive 12-month period), and the other is for a daily and annual limit. The annual limit option is chosen only to limit the combined emissions to 99 T/yr or less. The daily and annual limit option is chosen to protect a 24-hour ambient standard, an annual ambient standard, and to limit emissions to 99 T/yr. Depending on the circumstances, one or both options may be required. For this concrete batch plant, the concrete throughput is limited to five hundred twenty-five thousand, six hundred cubic yards per consecutive 12-month period (525,600 cy/yr) when collocated with another concrete batch plant, rock crushing plant, or hot-mix asphalt plant in any attainment or unclassifiable area.

4.4 Fugitive Emissions

Even though fugitive dust emissions are not included to determine PTE, they must be reasonably controlled at all times. In order to ensure the air quality is not degraded beyond the facility boundary, the standard permit requires that no visible emissions be seen crossing the facility boundary. It is assumed if no emissions visibly cross the boundary, the air quality is protected. This provision is included in the standard permit in lieu of fugitive dust modeling.

5. Modeling of Point Sources

5.1 Baghouse

The EPA-approved SCREEN3 model was used in this analysis using stack data provided by the applicant to predict the impact the baghouse emissions may have on the ambient air. A one (1) pound-per-hour emission rate was input into the model which calculated a maximum 1-hour concentration of 34 $\mu g/m^3$ for the cement silo baghouse. A 1-hour concentration of 189 $\mu g/m^3$ was predicted for the weigh batch baghouse. This information was input into the spreadsheet which calculated the allowable throughput.

5.2 Generator

The SCREEN3 model was used in this analysis using stack data provided by the applicant to predict the impact the generator emissions may have on the ambient air. A one (1) pound-per-hour emission rate was input into the model which calculated a maximum one 1-hour concentration of 42 $\mu g/m^3$. The 1-hour concentration was

then input into the spreadsheet which was used to calculate the facility's allowable throughput.

The SCREEN3 output for each applicable point source is presented as Appendix B of this document.

5.3 Collocated Operations

For collocated operations in attainment areas, operation of the concrete batch 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 $\mu g/m^3$, as follows:

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

where 150 $\mu g/m^3$ is the 24-hour average standard and 86 $\mu g/m^3$ is the conservative statewide 24-hour average background value. Then operation of the concrete batch 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 $\mu g/m^3$ 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.

6. 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 3273. The AIRS facility classification for this facility is "B" because the uncontrolled potential to emit is less than (100 T/yr). The spreadsheet included as Appendix A automatically determines the facility classification.

7. Regulatory Review

The following rules and regulations have been reviewed for this permit analysis:

IDAPA 58.01.01.201 Permit to Construct;

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 58.01.01.211	Conditions for Permits to Construct;
IDAPA 58.01.01.212	Obligation to Comply;
IDAPA 58.01.01.577	Ambient PM-10 Air Quality Standard;
IDAPA 58.01.01.625	Visible Emissions; and
IDAPA 58.01.01.650	Rules for Control of Fugitive Dust.

8. Permit Coordination

This concrete batching facility is not a major facility as defined by IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10, and it is not an NSPS-affected facility. Therefore, coordination with the Operating Permit Section is not necessary.

9. AIRS Information

Since each of these facilities is considered a new facility for AIRS purposes, an update to the AIRS data base is required. The information necessary to update the data base is included as Appendix C of this technical analysis.

FEES

The facility is not a major facility as defined in IDAPA 58.01.01.008.10. Therefore, registration and registration fees in accordance with IDAPA 58.01.01.526 are not applicable.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Burns Concrete, Inc. be issued a PTC for a portable concrete batching 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: DEQ State Office
Idaho Falls Regional Office

Appendix A

Emission Estimate Calculations

P-000531

Burns Concrete, Inc.

Concrete Batch Plant, Portable

Company Name:	Burns Concrete Inc	Engineer:	Ken Hanna
Permit No.:	777-0027?	Date:	October 16, 2000
Project:	STANDARD SREADSHEET CONCRETE BATCH PLANTS	File:	000511 WK4

Ton per Year Emission Limit: 100 [=] Tons/yr

Concrete Batch Plant Information

Facility Production Capacity:	120 [=] yds/hr	
Maximum Annual Hours of Operation	8,760 [=] hr/yr	
Cement Silo:		
Modeled 1-hr Concentration:	34 [=] µg/m3, at emission rate of 1 lb/hr	
Baghouse Control Effcy.	99.00%	%
Cement Hopper:		
Modeled 1-hr Concentration:	189 [=] µg/m3, at emission rate of 1 lb/hr	
Baghouse Control Effcy.	99.00%	%

Generator Set Information

Generator? (Y/N)	Y	
Generator Size:	535 [=] hp	
Units:	A	(A = Horsepower)
		(B = Kilowatts)
Fuel Type:	A	(A = Diesel-Fired Generator)
		(B = Gasoline-Fired or Dual-Fired Generator)
	50	Conversion Factor
	535	
Modeled 1-hr Concentration:	42 [=] µg/m3, at emission rate of 1 lb/hr	

Background Concentrations

	1-hr	3-hr	8-hr	24-hr	Annual
PM10				86	32.7
CO	11400		5130		
NOx					40
SOx		543		144	23.5
TOC					

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 <<OR>>	Calculated	yds/yr
	Daily Throughput Limit	Calculated	yds/day
	Annual Throughput Limit	Calculated	yds/yr
Section B.1.3 Generator Hours of Operation:	Annual Hours of Operation <<AND/OR>>	8,760	hr/year
	Daily Hours of Operation	24.0	hr/day
Section C "Attainment Area When Collocated"			
Section C.1.3 Facility Throughput Limits:	Annual Throughput Limit <<OR>>	525,600	yds/yr
	Daily Throughput Limit	Calculated	yds/day
	Annual Throughput Limit	525,600	yds/yr
Section C.1.4 Generator Hours of Operation:	Annual Hours of Operation <<AND/OR>>	4,380	hr/year
	Daily Hours of Operation	24.0	hr/day
Section D "Nonattainment Area"			
Section D.1.1 Facility Throughput Limits:	Annual Throughput Limits <<AND/OR>>	863,650	yds/yr
	Daily Throughput Limits	2,366	yds/day
	Annual Throughput Limits	863,650	yds/yr
Section D.1.3 Generator Hours of Operation:	Annual Hours of Operation <<AND/OR>>	7,197	hr/year
	Daily Hours of Operation	19.7	hr/day

PERMIT LIMITS TABLE

	Non-Attainment Area		Attainment Area			Collocated Attainment Area	
Production Rate:	120 yds/hr		120 yds/hr			120 yds/hr	
Operational Schedule:	19.7 hr/day	7,197 hr/year	24.0 hr/day		8,760 hr/year	24.0 hr/day	4,380 hr/year
Throughput Limits:	2,366 yds/day	863,650 yds/yr	Calculated yds/day		Calculated yds/yr	Calculated yds/day	525,600 yds/yr
Limiting Pollutant:	PM-10		None			None	
AIAS Facility Classification	B		B			B	

CO 1-hr Standard	SO2 3-hr Standard	CO 8-hr Standard
minutes/1-hr	hr/3-hr	hr/8-hr
60.00	3.00	8.00

OUTPUT

POTENTIAL TO EMIT - EMISSIONS ANALYSIS USING AMBIENT AIR QUALITY STANDARDS

Attainment/Non-Classifiable Areas

Generator

Pollutant	Permitted Controlled Emission Rates	
PM10	0.29 lbs/hr	1.29 Tons/yr
CO	1.98 lbs/hr	8.67 Tons/yr
NOx	7.49 lbs/hr	32.81 Tons/yr
SO2	0.70 lbs/hr	3.05 Tons/yr
TOC	0.20 lbs/hr	0.87 Tons/yr

Concrete Batching Point Sources

PM10	0.0840 lbs/hr	0.368 Tons/yr

	Uncontrolled	Controlled		Classification
Potential to Emit:	32.8 Tons/yr	32.8 Tons/yr	NO.	B

Enforceable Limits:

Production Rate:	120 yds/hr			
Operational Schedule:	24.0 hr/day		8,760 hr/year	
Throughput Limits:	Calculated	yds/day	Calculated	yds/yr
Limiting Pollutant:	None			

ATTAINSIENT/NON-CLASSIFIABLE AREAS

Concrete Batching Point Sources

	PSI Emission Factor (lb/cy)	Pre-Baghouse PSI Emissions (lb/hr)	Pre-Baghouse PSI Emissions (T/yr)	Other
Source				
Cement Silo Loading (Pneumatic)	0.02	0.4	36.8	8,760 hrs/yr
Weigh Hopper Loading (Cement)	0	0.0	0.0	8,760 hrs/yr
Total		0.4	36.8	

	Post-Baghouse PSI Emissions (lb/hr)	Post-Baghouse PSI Emissions (T/yr)
Baghouse Control Efficiency		
99.0%	0.004	0.17
99.0%	0.000	0.00
	0.004	0.17

Generator and Concrete Batching Point Source Emissions

Pollutant	Generator Emission Factor (lb/hp hr)	Generator Emission Rate (lb/hr)	Hours of Operation (hr/day)	AAQS Hours of Operation (hr/year)	Other	Allowable Impacts (ug/m3): Hours of Operation (hr/year)	Hours of Operation (hr/day)	(hr/year)	Generator & Pole Allowable Impacts Emission Rates (lb/day)	(T/year)	Permitted Impacts AAQS Calculated 24 hr Impact (ug/m3)	AAQS Calculated Annual Impact (ug/m3)	Other	(ug/m3) Calculated Concentration (ug/m3)	Calculated Emissions (ton/year)
PM	0.0006	0.29	N.S.	N.S.		N.S.									
PM10	0.0006	0.29	24.0	4,760		8,760 Baseline	24.0	8,760	7.1	1.29	N.S.	N.S.			1.66
CO	0.0033	1.98	N.S.	N.S.		8,760 None			7.1	1.29	6.1	1.6			1.66
SO2					1.0				47.5	8.67	12.3	0.7			0.67
SO3					0.0									83.1	
NOx	0.0180	7.49	N.S.	8,760		8,760			179.8	32.81	123.8	25.2		58.2	12.61
SO2	0.0013	0.70	24.0	8,760		8,760			16.7	3.05	11.7	4.3			3.05
SO3					1.0									26.1	
TOC	0.0005	0.20	N.S.	N.S.		8,760			4.8	0.87	2.1	0.7			0.87

Non-Attainment Areas

Generator

Pollutant	Permitted Controlled Emission Rates	
PM10	0.29 lbs/hr	1.06 Tons/yr
CO	1.98 lbs/hr	7.12 Tons/yr
NOx	7.49 lbs/hr	26.95 Tons/yr
SO2	0.29 lbs/hr	1.06 Tons/yr
TOC	0.20 lbs/hr	0.71 Tons/yr

Concrete Batching Point Sources

PM10	0.0840 lbs/hr	0.302 Tons/yr

	Uncontrolled	Controlled		Classification
Potential to Emit:	27.0 Tons/yr	27.0 Tons/yr	NO.	B

Enforceable Limits:

Production Rate:	120 yds/hr		
Operational Schedule:	19.7 hr/day		7,197 hr/year
Throughput Limits:	2,366 yds/day		863,650 yds/yr
Limiting Pollutant:	PM10		

Pollutant	Ambient Air Concentrations w/ Background Values (ug/m3)				
	1-hr	3-hr	8-hr	24-hr	Annual
PM					
PM10				92	34
CO	11483		5188		
NOx					65
SO2		369		156	26
TOC					

NON-ATTAINMENT AREAS

Concrete Batching Point Sources

Source	PM Emission Factor (=) lb/yd3 Concrete	Pre-Baghouse PM Emissions (=) lb/hr	Pre-Baghouse PM Emissions (=) T/yr	Ghrs	Baghouse Control Efficiency	Post-Baghouse PM Emissions (=) lb/hr	Post-Baghouse PM Emissions (=) T/yr
Cement Silo Loading (Pneumatic)	0.07	8.4	30.23	7,197 hrs/yr	99.00%	0.084	0.30
Weigh Hopper Loading (Cement)	0	0.0	0.00	7,197 hrs/yr	99.00%	0.000	0.00
Total		8.4	30.23			0.084	0.30

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

Pollutant	Generator Emission Factor (=) lb/hp-hr	Generator Emission Rate (=) lb/hr	Allowable Impacts: AAQS Hours of Operation (=) hr/day	AAQS Hours of Operation (=) hr/year	AAQS Hours of Operation Other (,)	< 100 TPY: Hours of Operation (=) hr/year	Generator & Site Allowable Impacts: Hours of Operation (=) hr/day	Hours of Operation (=) hr/year	Emission Rates (=) lb/day	Emission Rates (=) Tons/year	Permitted Impacts: AAQS Calculated 24-hr Impact (=) ug/m3	AAQS Calculated Annual Impact (=) ug/m3	< 100 TPY: Other	< 100 TPY: Calculated Emissions (=) ton/year
PM	0.0006	0.29	N/S	N/S		N/S	19.7	7,197	5.8	1.06	N/S	N/S		1.36
PM10	0.0006	0.29	19.7	7,197		8,760	Based on	Based on	5.8	1.06	5.0	1.9		1.36
CO	0.0037	1.98	N/S	N/S		8,760	PM-10	PM-10	39.0	7.12	27.3	5.5		7.12
CO 2					1.0								83.3	
CO 3					8.0								58.2	
NOx	0.0140	7.49	N/S	8,760		8,760			147.7	26.93	103.4	20.7		26.93
SO2	0.0006	0.29	24.0	8,760		8,760			5.8	1.06	4.1	0.8		1.06
SO2 4					3.0								11.1	
TOC	0.0004	0.20	N/S	N/S		8,760			3.9	0.71	2.7	0.5		0.71

Notes: 1 TPY calculations include concrete batching point source emissions
2 CO 1-hr Averaging Period
3 CO 8-hr Averaging Period
4 SO2 3-hr Averaging Period
** Assumes ambient TSP concentrations exceed NAAQS in PM-10 Non-Attainment Areas

Attainment Area - Collocated Units - Calculations

Collocated 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				25.9142	5.33095
CO	14216.861		2376.8027		
NOx					17.4168
SO2		367.37735		98.8156	27.08156
TOC					

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

Pollutant	1-hr	3-hr	8-hr	24-hr	Annual
PM					
PM-10				86	32.7
CO	11400		5130		
NOx					90
SO2		543		134	23.5
TOC					

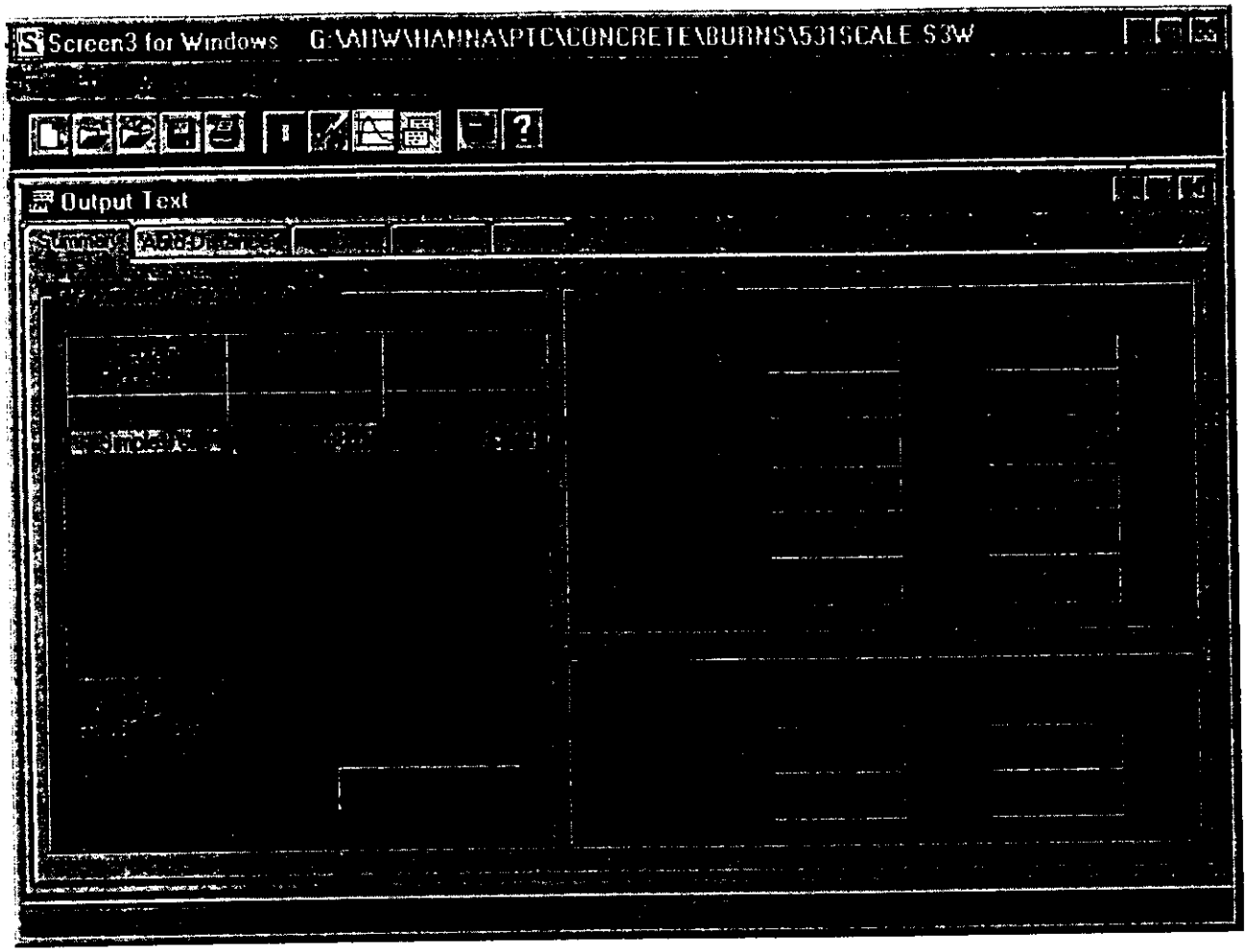
Appendix B

Modeling

P-000531

Burns Concrete, Inc.

Concrete Batch Plant, Portable



Burns Concrete, Concrete Batch Scale Baghouse, 10-16-00

1

0/16/00

1

7:49:25
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Burns Concrete, Cement Storage Silo

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	7.9248
STK INSIDE DIAM (M)	=	.2804
STK EXIT VELOCITY (M/S)	=	2.1473
STK GAS EXIT TEMP (K)	=	293.1500
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	1.0000
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 = .000 M**4/S**3; MOM. FLUX = .091 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.	.0000	1	1.0	1.0	320.0	9.73	.47	.28	NO
100.	185.2	3	1.0	1.0	320.0	9.73	12.47	7.46	NO
200.	167.4	5	1.0	1.0	10000.0	9.73	11.64	6.26	NO
300.	147.5	6	1.0	1.0	10000.0	9.73	11.24	5.6	

5	NO								
	400.	151.5	6	1.0	1.0	10000.0	9.73	14.65	7.0
7	NO								
	500.	136.2	6	1.0	1.0	10000.0	9.73	17.97	8.4
1	NO								
	600.	117.7	6	1.0	1.0	10000.0	9.73	21.24	9.7
0	NO								
	700.	100.8	6	1.0	1.0	10000.0	9.73	24.46	10.9
4	NO								
	800.	86.97	6	1.0	1.0	10000.0	9.73	27.64	11.9
9	NO								
	900.	75.66	6	1.0	1.0	10000.0	9.73	30.78	12.9
9	NO								
	1000.	66.40	6	1.0	1.0	10000.0	9.73	33.89	13.9
6	NO								

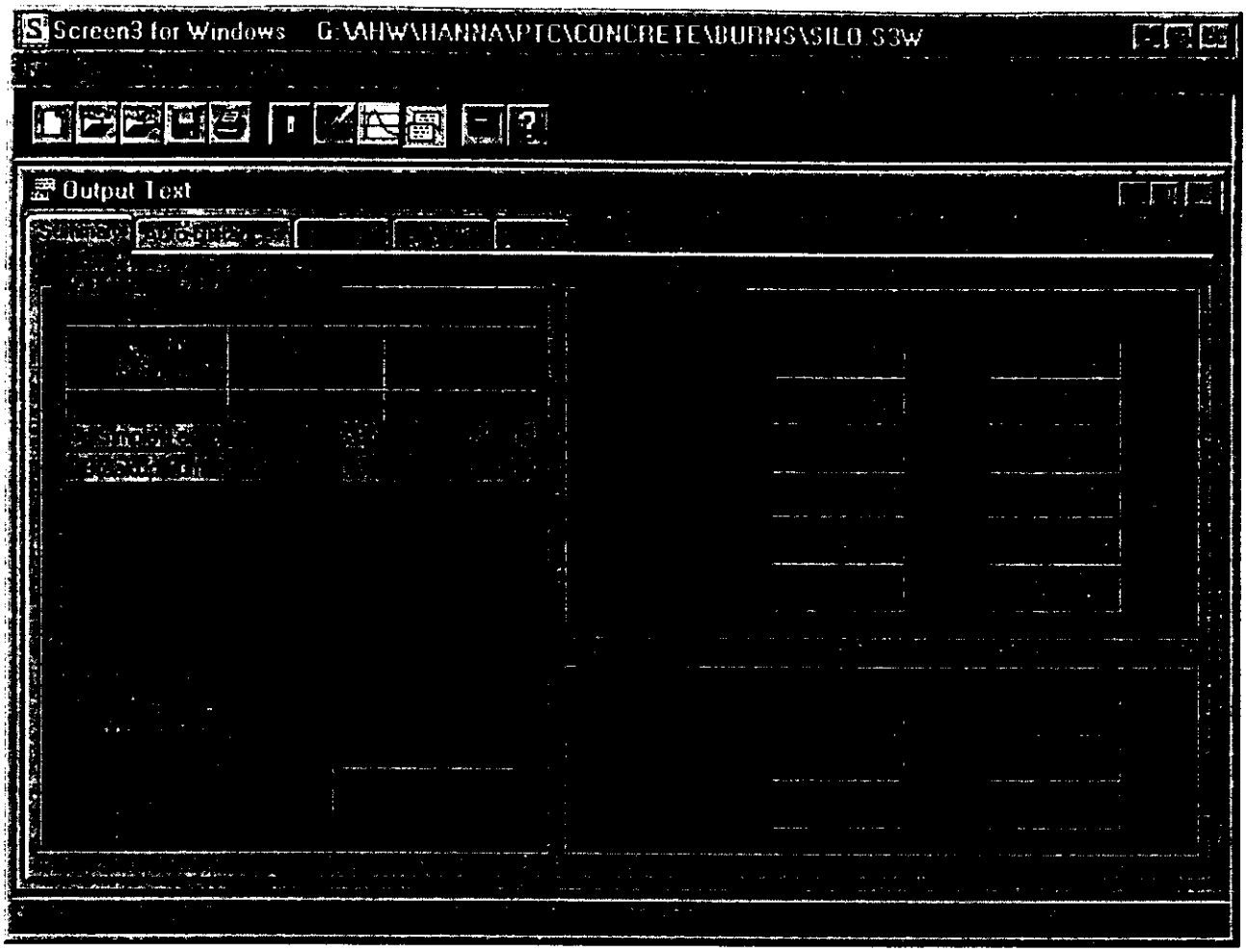
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

	89.	188.7	3	1.0	1.0	320.0	9.73	11.32	6.7
8	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	188.7	89.	0.



Burns Concrete, ~~Concrete~~ Cement Storage Silo Baghouse, 10-16-00

1

10/16/00

1

17:45:08
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Burns Concrete, Concrete Silo

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	19.8120
STK INSIDE DIAM (M)	=	.4420
STK EXIT VELOCITY (M/S)	=	1.7753
STK GAS EXIT TEMP (K)	=	293.1500
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	1.0000
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 = .000 M**4/S**3; MOM. FLUX = .154 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.	.0000	1	1.0	1.0	320.0	22.06	.47	.29	NO
100.	29.39	1	1.0	1.0	320.0	22.06	26.86	13.96	NO
200.	33.17	3	1.0	1.1	320.0	22.01	23.63	14.04	NO
300.	29.90	3	1.0	1.1	320.0	22.01	34.30	20.3	

4	NO								
	400.	28.76	4	1.0	1.1	320.0	21.94	29.46	15.2
8	NO								
	500.	26.70	4	1.0	1.1	320.0	21.94	36.15	18.3
1	NO								
	600.	23.40	4	1.0	1.1	320.0	21.94	42.72	21.2
2	NO								
	700.	22.18	5	1.0	1.3	10000.0	21.57	36.77	16.5
2	NO								
	800.	20.72	5	1.0	1.3	10000.0	21.57	41.55	18.2
8	NO								
	900.	19.07	5	1.0	1.3	10000.0	21.57	46.27	19.9
8	NO								
	1000.	18.48	6	1.0	1.5	10000.0	21.18	33.89	13.9
6	NO								
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:									
	223.	33.85	3	1.0	1.1	320.0	22.01	26.22	15.5
7	NO								

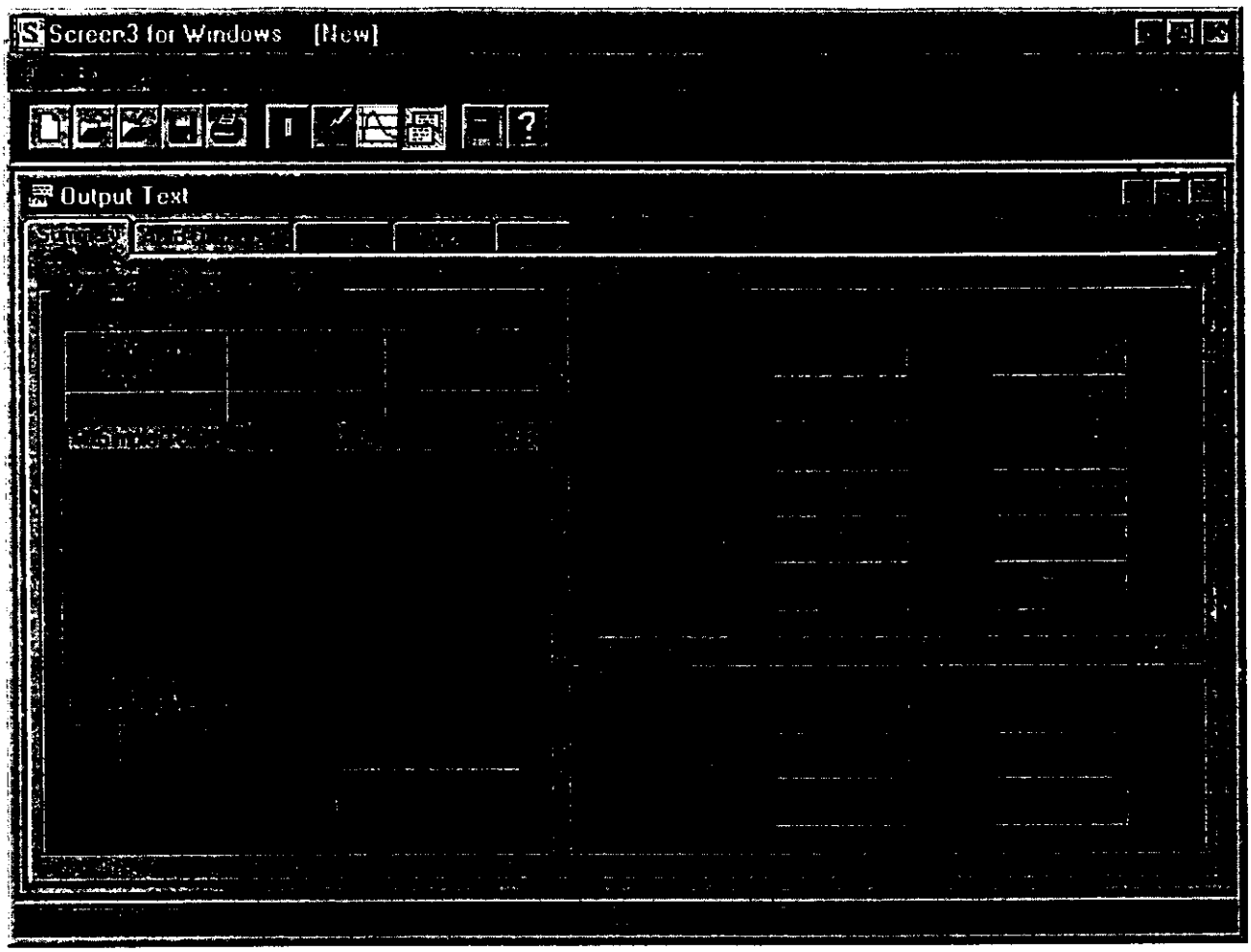
DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** INVERSION BREAK-UP FUMIGATION CALC. ***
CONC (UG/M**3) = .0000
DIST TO MAX (M) = 100.00

DIST TO MAX IS < 2000. M. CONC SET = 0.0

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

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	33.85	223.	0.



Burns Concrete, ONAN 350DQSB Generator 10-16-03

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10/16/00

1

17:39:20

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

Burns Concrete, Onan 350DQBB Generator,

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	2.8712
STK INSIDE DIAM (M)	=	.1524
STK EXIT VELOCITY (M/S)	=	60.6695
STK GAS EXIT TEMP (K)	=	766.4833
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	1.0000
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 = 2.133 M**4/S**3; MOM. FLUX = 8.174 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.	.0000	1	1.0	1.0	320.0	40.69	1.72	1.68	NO
100.	39.25	4	10.0	10.0	3200.0	6.65	8.27	4.78	NO
200.	28.76	4	5.0	5.0	1600.0	10.43	15.71	8.77	NO
300.	22.09	4	3.5	3.5	1120.0	13.68	22.82	12.4	

8	NO								
	400.	17.86	4	2.5	2.5	800.0	18.00	29.77	15.8
7	NO								
	500.	15.00	4	2.0	2.0	640.0	21.78	36.55	19.0
8	NO								
	600.	12.97	4	2.0	2.0	640.0	21.78	43.06	21.8
9	NO								
	700.	11.46	4	1.5	1.5	480.0	28.08	49.71	25.0
9	NO								
	800.	10.30	4	1.5	1.5	480.0	28.08	56.04	27.7
3	NO								
	900.	9.216	4	1.5	1.5	480.0	28.08	62.30	30.3
3	NO								
	1000.	8.343	4	1.0	1.0	320.0	40.69	68.98	33.8
6	NO								

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

	57.	41.54	3	10.0	10.0	3200.0	6.65	7.58	4.6
1	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	41.54	57.	0.

Appendix C

AIRS Database Update Form

P-000531

Burns Concrete, Inc.

Concrete Batch Plant, Portable

ABBREVIATED AIRS DATA ENTRY SHEET - CONCRETE BATCH PLANT

Name of Facility: Burns Concrete, Inc.

AIRS/Permit #: 777-00274

Permit Issue Date: October 2000

Source/Emissions Unit Name (25 spaces) (Please use name as indicated in permit)	**SCC #** (8 digit #)	**Air Program** (SIP/NESHAP/NSPS/PSD)
Flyash/Cement to Silo	30501199	SIP
Agg Handling/Piles	30500204	SIP
Transit Mix Truck Loading	30501110	SIP
Fugitives	30588801	SIP
Property Boundary	30588801	SIP

RETURN TO PAT RAYNE

AIRS-PT.LST (9/95)