Air Quality Permitting
Technical Memorandum

Permit to Construct No. 777-00070

Concrete-Batching Facility
Including Aggregate, Asphalt, and Concrete Production
When Collocated in Attainment Areas

ACME CONCRETE PAVING, INC.

Prepared By:
Dustin Holloway
Permit Writer

Project No. P-020002

Date Prepared:
March 26, 2002

Permit Status:
FINAL
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**ACRONYMS, UNITS, and CHEMICAL NOMENCLATURE**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>acfm</td>
<td>actual cubic feet per minute</td>
</tr>
<tr>
<td>AFS</td>
<td>AIRS Facility Subsystem</td>
</tr>
<tr>
<td>AIRS</td>
<td>Aerometric Information Retrieval System</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>DEQ</td>
<td>Department of Environmental Quality</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>HAPs</td>
<td>hazardous air pollutants</td>
</tr>
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<td>HMA</td>
<td>hot-mix asphalt</td>
</tr>
<tr>
<td>hp</td>
<td>horsepower</td>
</tr>
<tr>
<td>IDAPA</td>
<td>A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act</td>
</tr>
<tr>
<td>MACT</td>
<td>Maximum Available Control Technology</td>
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<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
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<td>NESHAP</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
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<td>NOx</td>
<td>nitrogen oxides</td>
</tr>
<tr>
<td>NSPS</td>
<td>New Source Performance Standards</td>
</tr>
<tr>
<td>PM</td>
<td>particulate matter</td>
</tr>
<tr>
<td>PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers</td>
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<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
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<td>PTC</td>
<td>permit to construct</td>
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<td>PTE</td>
<td>potential to emit</td>
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<td><em>Rules</em></td>
<td><em>Rules for the Control of Air Pollution in Idaho</em></td>
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<td>SIP</td>
<td>State Implementation Plan</td>
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<td>SO&lt;sub&gt;2&lt;/sub&gt;</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>T/yr</td>
<td>tons per year</td>
</tr>
<tr>
<td>µg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>micrograms per cubic meter</td>
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<td>VOC</td>
<td>Volatile Organic Compound</td>
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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

Acme Concrete Paving, Inc. (Acme), recently purchased a portable concrete-batching facility. Acme 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 (HMA), or concrete batch plant). The concrete batch plant’s maximum hourly throughput is 400 cubic yards per hour. The facility includes an 820-kilowatt, diesel-fired, electrical generator set.

SUMMARY OF EVENTS

February 4, 2002 The Idaho Department of Environmental Quality (DEQ) received a PTC application from Acme for a concrete batch plant.

March 13, 2002 The application was determined complete.

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 onsite 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 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 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 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, HMA, 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:** Rex
- **Model:** "S"
- **Maximum Capacity:** 400 cubic yards per hour

2.2 **Cement Storage Silo Baghouse**

- **Stack Height:** 9.5 ft
- **Stack Diameter:** 1.33 ft
- **Exit Air Flowrate:** 8,000 actual cubic feet per minute (acfm)
- **Capture Efficiency:** 99.9%

2.4 **Generator**

- **Manufacturer/Model:** Caterpillar
- **Rated Power Output:** 820 kW
- **Stack Diameter:** 0.833 ft
- **Stack Height:** 10 ft
- **Exhaust Gas Flowrate:** 6,886 acfm
- **Exhaust Gas Temperature:** 845°F
- **Fuel Type:** Diesel
- **Fuel Usage:** 63 gallons per hour

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 98 tons per any consecutive 12-month period based on NO\textsubscript{x} 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\textsubscript{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\textsubscript{10} NAAQS and to limit facility emissions to 99 T/yr or less.

For this concrete batch plant, the concrete throughput is limited to 2,950,308 cubic yards per consecutive 12-month period while operating in any attainment or unclassifiable area.

4.2 **Nonattainment Area Operations**

For facilities that use a generator in a PM\textsubscript{10} nonattainment area or proposed PM\textsubscript{10} nonattainment area, throughput is limited to protect the PM\textsubscript{10} nonattainment area 24-hour and annual ambient impact limits (5.0 ug/m\textsuperscript{3} and 1.0 ug/m\textsuperscript{3}, respectively). When a generator is not used, throughput is limited to keep PM\textsubscript{10} emissions below 99 T/yr.

For this concrete batch plant, the concrete throughput is limited to 2,950,308 cubic yards per year while operating in PM\textsubscript{10} nonattainment area or proposed PM\textsubscript{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, HMA 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 1,475,154 cubic yards per consecutive 12-month period when collocated with another concrete batch plant, rock crushing plant, or HMA plant in any attainment or unclassifiable area. A daily throughput restriction is not required since the emissions from this plant are not great enough to violate any 24-hour ambient air standard, even when operating at full capacity.

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(s)**

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 pound-per-hour emission rate was input into the model which calculated a maximum one-hour concentration of 42.36 µg/m³ for the cement silo 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 and exit flows determined by DEQ to predict the impact the generator emissions may have on the ambient air. A one pound-per-hour emission rate was input into the model which calculated a maximum one-hour concentration of 24.61 µg/m³. The one-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. The generator exhaust flow calculations are presented in Appendix C 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 Standard Industrial Classification 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:

- **a. IDAPA 58.01.01.201** Permit to Construct
- **b. IDAPA 58.01.01.202** Application Procedures
- **c. IDAPA 58.01.01.203** Permit Requirements for New and Modified Stationary Sources
- **d. IDAPA 58.01.01.209** Procedures for Issuing Permits
- **e. IDAPA 58.01.01.211** Conditions for Permits to Construct
- **f. IDAPA 58.01.01.212** Obligation to Comply
- **g. IDAPA 58.01.01.577** Ambient PM$_{10}$ Air Quality Standard
- **h. IDAPA 58.01.01.625** Visible Emissions
- **i. 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**

<table>
<thead>
<tr>
<th>AIR PROGRAM</th>
<th>SIP</th>
<th>PSD</th>
<th>NSPS <em>(Part 60)</em></th>
<th>NESHAP <em>(Part 61)</em></th>
<th>MACT <em>(Part 65)</em></th>
<th>TITLE</th>
<th>AREA CLASSIFICATION</th>
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<tr>
<td>POLLUTANT</td>
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</table>

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

**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).

- State Implementation Plan
- Prevention of Significant Deterioration
- New Source Performance Standards
- National Emission Standards for Hazardous Air Pollutants
- Maximum Achievable Control Technology
- Sulfur Dioxide
- Nitrogen Oxides
- Carbon Monoxide
- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
- Particulate Matter
- Volatile Organic Compounds
- Hazardous Air Pollutants
PUBLIC COMMENT

After an application is determined complete, an opportunity for public comment is provided. The opportunity for public comment lasts 30 days from the completeness date. No public comment period was requested for this project.

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 recommends that Acme Concrete Paving, 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.

DH/DS/bh

cc: Tom Harman, Coeur d'Alene Regional Office
    Sherry Davis, Technical Services
    Joan Lechtenberg, AQ Program Office
Appendix A

Emission Estimate Calculations

Concrete Batch Plant, Portable
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
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<td>Data 11</td>
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**Table Notes:**

- Column 1 includes data entries from 1 to 12.
- Column 2 contains additional information related to Column 1.
- Column 3 further elaborates on the data in Column 2.
- Column 4 provides summary or concluding remarks based on the data presented.
Appendix B

Modeling

Concrete Batch Plant, Portable
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Silo

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = 0.126000
STACK HEIGHT (M) = 2.8956
STK INSIDE DIAM (M) = 0.4054
STK EXIT VELOCITY (M/S) = 29.2523
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 = 35.158 M**4/S**2.

*** FULL METEOROLOGY ***

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

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

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<tr>
<th>DIST (M)</th>
<th>CONC (UG/M**3)</th>
<th>STAB</th>
<th>U10M (M/S)</th>
<th>USTK (M/S)</th>
<th>MIX HT (M)</th>
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<td></td>
</tr>
</tbody>
</table>

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
700. 42.36 | 6 | 1.0 | 1.0 10000.0 | 18.03 | 24.84 | 11.75 | 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 ***
****************************************************

<table>
<thead>
<tr>
<th>CALCULATION PROCEDURE</th>
<th>MAX CONC (UG/M**3)</th>
<th>DIST TO MAX (M)</th>
<th>TERRAIN HT (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMPLE TERRAIN</td>
<td>42.36</td>
<td>700.</td>
<td>0.</td>
</tr>
</tbody>
</table>
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Acme Concrete Generator

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = 0.126000
STACK HEIGHT (M) = 3.0480
STK INSIDE DIAM (M) = 0.2540
STK EXIT VELOCITY (M/S) = 38.8891
STK GAS EXIT TEMP (K) = 724.8167
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 = 3.663 M**4/S**3; MOM. FLUX = 9.866 M**4/S**2.

*** FULL METEOROLOGY ***

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

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

<table>
<thead>
<tr>
<th>DIST (M)</th>
<th>CONC (UG/M**3)</th>
<th>U10M (M/S)</th>
<th>USTK (M/S)</th>
<th>MIX HT (M)</th>
<th>PLUME HT (M)</th>
<th>SIGMA Y (M)</th>
<th>SIGMA Z (M)</th>
<th>DWASH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>1.0</td>
<td>1.0</td>
<td>320.0</td>
<td>59.78</td>
<td>1.80</td>
<td>1.76</td>
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<tr>
<td></td>
<td></td>
<td>100</td>
<td>24.28</td>
<td>15.0</td>
<td>15.0</td>
<td>4800.0</td>
<td>6.83</td>
<td>8.26</td>
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<tr>
<td></td>
<td></td>
<td>200</td>
<td>18.65</td>
<td>4.0</td>
<td>8.0</td>
<td>8.0</td>
<td>2560.0</td>
<td>10.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300</td>
<td>14.48</td>
<td>4.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1600.0</td>
<td>14.39</td>
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<tr>
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<td></td>
<td>400</td>
<td>11.78</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>1280.0</td>
<td>17.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500</td>
<td>9.900</td>
<td>4.0</td>
<td>3.5</td>
<td>3.5</td>
<td>1120.0</td>
<td>19.26</td>
</tr>
</tbody>
</table>

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
85. 24.61 4 20.0 20.0 6400.0 5.88 7.16 4.14 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
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<tr>
<td>SIMPLE TERRAIN</td>
<td>24.61</td>
<td>85</td>
<td>0</td>
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</tbody>
</table>
Appendix C

Generator Exhaust Flow Estimate

Concrete Batch Plant, Portable