Mr. Joseph LaManna
DaimlerChrysler Corporation - Indiana Transmission Plant
3660 North US Highway 31
Kokomo, IN 46904

Re: Significant Source Modification No:
067-11093-00058

Dear Mr. LaManna:

DaimlerChrysler Corporation - Indiana Transmission Plant applied for a Part 70 operating permit on March 3, 1999 for a transmission production facility. Applications to modify the source was received on June 7, 1999 and June 22, 1999. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

(a) Four (4) reciprocating internal combustion engines, identified as Test Cell 1, Test Cell 2, Test Cell 3, and Test Cell 4, each fueled by gasoline, each with a maximum heat capacity of 4.2 million British thermal units (MMBtu) per hour, and each exhausting through one (1) stack;

(b) Seven (7) abrasive blasting units, identified as Line 204 Shotblast Unit A, Line 204 Shotblast Unit B, Line 493 Shotblast, Line 553 Shotblast, Line 586 Shotblast, Line 602 Shotblast; and

(c) One (1) deburring machine, identified as Line 537 Deburring, with a maximum production rate of 21,600 parts per hour, utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant.

The proposed Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter contact Yvette de los Angeles, c/o OAM, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, press 0 and ask for Duane Van Laningham or extension (3-6878), or dial (973) 575-2555, extension 3216.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
YD/EVP
cc: File - Howard County
U.S. EPA, Region V
Air Compliance Section Inspector Ryan Hillman
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

# PART 70 SIGNIFICANT SOURCE MODIFICATION
# OFFICE OF AIR MANAGEMENT

## DaimlerChrysler Corporation - Indiana Transmission Plant
## 3660 North US Highway 31
## Kokomo, Indiana 46901

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

| | |
|---|---|
| Source Modification No.: 067-11093-00058 | |
| Issued by:<br>Paul Dubenetzky, Branch Chief<br>Office of Air Management | Issuance Date: |

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## SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary transmission production facility.

| | |
|---|---|
| Responsible Official: | Joseph LaManna |
| Source Address: | 3660 North US Highway 31, Kokomo, Indiana 46901 |
| Mailing Address: | 3660 North US Highway 31, Kokomo, Indiana 46901 |
| Phone Number: | (765) 854-4152 |
| SIC Code: | 3714 |
| County Location: | Howard |
| County Status: | Attainment for all criteria pollutants |
| Source Status: | Part 70 Permit Program<br>Minor Source, under PSD Rules;<br>Minor Source, Section 112 of the Clean Air Act |

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct and operate the following emission units and pollution control devices:

(a) Four (4) reciprocating internal combustion engines, identified as Test Cell 1, Test Cell 2, Test Cell 3, and Test Cell 4, each fueled by gasoline, each with a maximum heat capacity of 4.2 million British thermal units (MMBtu) per hour, and each exhausting through one (1) stack;

(b) Seven (7) abrasive blasting units, identified as Line 204 Shotblast Unit A, Line 204 Shotblast Unit B, Line 493 Shotblast, Line 553 Shotblast, Line 586 Shotblast, Line 602 Shotblast, and Line 625 Shotblast, each utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant; and

(c) One (1) deburring machine, identified as Line 537 Deburring, with a maximum production rate of 21,600 parts per hour, utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant.

### A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Permit No Defense [IC 13]

This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions [326 IAC 2-7-1]

Terms in this approval shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2 and 326 IAC 2-7 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

B.4 Revocation of Permits [326 IAC 2-1.1-9(5)][326 IAC 2-7-10.5(i)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.5 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

However, in the event that the Title V application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

(1) If the Title V draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Title V draft.

(2) If the Title V permit has gone thru final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go thru a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Title V permit at the time of issuance.

(3) If the Title V permit has not gone thru final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Title V permit, and the Title V permit will issued after EPA review.

B.6 Phase Construction Time Frame

That pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the IDEM may revoke this approval to construct if the:

(a) Construction of Phase 1 (for the dynamometers) has not begun within eighteen (18) months from the effective date of this approval or if during the construction of Phase 1, (for the dynamometers) work is suspended for a continuous period of one (1) year or more.

(b) Construction of Phase 2 (for the dynamometers) has not begun within eighteen (18) months after the operation of Phase 1 (for the dynamometers) or if during the construction of Phase 2 (for the dynamometers), work is suspended for a continuous period of one (1) year or more.

The OAM may extend such time upon satisfactory showing that an extension, formally requested by the Permittee is justified.

## SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) Where specifically designated by this approval or required by an applicable requirement, any application form, report, or compliance certification submitted under this approval shall contain certification by a responsible official of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, on the attached Certification Form, with each submittal.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this approval, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this approval, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. IDEM, OAM may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this approval.

(b) Any application requesting an amendment or modification of this approval shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this approval:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

C.5 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided in this approval, all air pollution control equipment listed in this approval and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

**Testing Requirements [326 IAC 2-7-6(1)]**

C.6 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAM, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]**

C.7 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Compliance with applicable requirements shall be documented as required by this approval. All monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

C.8 Pressure Gauge Specifications

Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ( ±2%) of full scale reading.

**Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]**

C.9 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5][326 IAC 2-7-6] [326 IAC 1-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. This compliance monitoring plan is comprised of:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this approval;

(3) The Compliance Monitoring Requirements in Section D of this approval;

(4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this approval; and

(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this approval. CRP's shall be submitted to IDEM, OAM upon request and shall be subject to review and approval by IDEM, OAM. The CRP shall be prepared within ninety (90) days after issuance of this approval by the Permittee and maintained on site, and is comprised of :

(A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this approval; and

(B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.

(b) For each compliance monitoring condition of this approval, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the approval unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.

(c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the approval conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the approval, and such request has not been denied or;

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

C.10 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this approval exceed the level specified in any condition of this approval, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected facility while the corrective actions are being implemented. IDEM, OAM shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM reserves the authority to use enforcement activities to resolve noncompliant stack tests.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate approval conditions may be grounds for immediate revocation of the approval to operate the affected facility.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

C.11 Monitoring Data Availability [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)]

(a) With the exception of performance tests conducted in accordance with Section C-Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this approval shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this approval is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this approval.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.12 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this approval;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this approval, and whether a deviation from an approval condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.

(d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance.

C.13 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(a) The reports required by conditions in Section D of this approval shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this approval, any notice, report, or other submission required by this approval shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM on or before the date it is due.

(c) Unless otherwise specified in this approval, any semi-annual report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) The first report shall cover the period commencing on the date of issuance of this approval and ending on the last day of the reporting period.

**SECTION D.1 FACILITY OPERATION CONDITIONS**

Facility Description [326 IAC 2-7-5(15)]

(a) Four (4) reciprocating internal combustion engines, identified as Test Cell 1, Test Cell 2, Test Cell 3, and Test Cell 4, each fueled by gasoline, each with a maximum heat capacity of 4.2 million British thermal units (MMBtu) per hour, and each exhausting through one (1) stack;

(b) Seven (7) abrasive blasting units, identified as Line 204 Shotblast Unit A, Line 204 Shotblast Unit B, Line 493 Shotblast, Line 553 Shotblast, Line 586 Shotblast, Line 602 Shotblast, and Line 625 Shotblast, each utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant; and

(c) One (1) deburring machine, identified as Line 537 Deburring, with a maximum production rate of 21,600 parts per hour, utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant.

**Emission Limitations and Standards [326 IAC 2-7-5(1)]**

D.1.1 Particulate Matter (PM) [326 IAC 6-1-2]

Pursuant to 326 IAC 6-1-2 (Particulate Emission Limitations), facilities shall not allow or permit discharge to the atmosphere of any gases which contain particulate matter in excess of 0.03 grains per dry standard cubic foot (gr/dscf). This is equivalent to the following particulate matter emission rates:

| Unit | Particulate Emission Rate (pounds per hour) | Air Flow Rate (acfm) |
|---|---|---|
| Line 204 Shotblast Unit A | 0.03 | 2800 |
| Line 204 Shotblast Unit B | 0.03 | 2800 |
| Line 493 Shotblast | 0.03 | 2000 |
| Line 553 Shotblast | 0.03 | 2000 |
| Line 586 Shotblast | 0.03 | 2000 |
| Line 602 Shotblast | 0.03 | 2000 |
| Line 625 Shotblast | 0.03 | 2000 |
| Line 537 Deburring | 0.01 | 1200 |

**Compliance Determination Requirements**

D.1.2 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]

(a) During the period between 30 and 36 months after issuance of this permit, the Permittee shall perform PM and PM-10 testing on the seven (7) abrasive blasting units and the one (1) deburring machine utilizing Methods 5 or 17 (40 CFR 60, Appendix A) for PM and Methods 201 or 201A and 202 (40 CFR 51, Appendix M) for PM-10, or other methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM-10 includes filterable and condensible PM-10. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

(b) During the period between 30 and 36 months after issuance of this permit, the Permittee shall perform CO testing on the four (4) reciprocating internal combustion engines utilizing Method 10, or other methods as approved by the Commissioner to verify the emission factors submitted by the source. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

D.1.3 Particulate Matter (PM)

The dust collectors with HEPA filters for PM control shall be in operation at all times when the seven (7) abrasive blasting units and the one (1) deburring machine are in operation.

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

D.1.4 Parametric Monitoring

The Permittee shall record the total static pressure drop across the dust collectors used in conjunction with the seven (7) abrasive blasting units and the one (1) deburring machine systems, at least once daily when the seven (7) abrasive blasting units and the one (1) deburring machine are in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the dust collectors shall be maintained within the range of 0.5 and 2.5 inches of water or a range established during the latest stack test or recommended by manufacturer. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM and shall be calibrated at least once every six (6) months.

D.1.5 Dust Collector Inspections

An inspection shall be performed each calender quarter of all bags controlling the seven (7) abrasive blasting units and the one (1) deburring machine systems when venting to the atmosphere. A dust collector inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.1.6 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For single compartment dust collectors, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

**Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

D.1.7 Record Keeping Requirements

(a) To document compliance with Condition D.1.4, the Permittee shall maintain the following:

(1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:

(A) Inlet and outlet differential static pressure; and

(B) Cleaning cycle: frequency and differential pressure.

(2) Documentation of all response steps implemented, per event .

(3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.

(4) Quality Assurance/Quality Control (QA/QC) procedures.

(5) Operator standard operating procedures (SOP).

(6) Manufacturer's specifications or its equivalent.

(7) Equipment "troubleshooting" contingency plan.

(8) Documentation of the dates vents are redirected.

(b) To document compliance with Condition D.1.5, the Permittee shall maintain records of the results of the inspections required under Condition D.1.5 and the dates the vents are redirected.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
# OFFICE OF AIR MANAGEMENT
# COMPLIANCE DATA SECTION

## PART 70 SOURCE MODIFICATION CERTIFICATION

Source Name: DaimlerChrysler Corporation - Indiana Transmission Plant
Source Address: 3660 North US Highway 31, Kokomo, Indiana 46901
Mailing Address: 3660 North US Highway 31, Kokomo, Indiana 46901
Source Modification No.: 067-11093-00058

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.**

Please check what document is being certified:

**9** Test Result (specify) _____

**9** Report (specify) _____

**9** Notification (specify) _____

**9** Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

# Indiana Department of Environmental Management
# Office of Air Management

## Technical Support Document (TSD) for a Part 70 Significant Source Modification

**Source Background and Description**

| | |
|---|---|
| **Source Name:** | **DaimlerChrysler Corporation - Indiana Transmission Plant** |
| **Source Location:** | **3660 North US Highway 31, Kokomo, Indiana 46901** |
| **County:** | **Howard** |
| **SIC Code:** | **3714** |
| **Significant Source Modification No.:** | **067-11093-00058** |
| **Permit Reviewer:** | **Yvette de los Angeles/EVP** |

The Office of Air Management (OAM) has reviewed a modification application from DaimlerChrysler Corporation - Indiana Transmission Plant relating to the construction of the following emission units and pollution control devices:

(a) Four (4) reciprocating internal combustion engines, identified as Test Cell 1, Test Cell 2, Test Cell 3, and Test Cell 4, each fueled by gasoline, each with a maximum heat capacity of 4.2 million British thermal units (MMBtu) per hour, and each exhausting through one (1) stack;

(b) Seven (7) abrasive blasting units, identified as Line 204 Shotblast Unit A, Line 204 Shotblast Unit B, Line 493 Shotblast, Line 553 Shotblast, Line 586 Shotblast, Line 602 Shotblast, and Line 625 Shotblast, each utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant; and

(c) One (1) deburring machine, identified as Line 537 Deburring, with a maximum production rate of 21,600 parts per hour, utilizing a canister dust collector with HEPA filter for particulate matter control, exhausting inside the plant.

**History**

On June 7, 1999 and June 22, 1999, DaimlerChrysler Corporation - Indiana Transmission Plant submitted applications to the OAM requesting to add four (4) reciprocating internal combustion engines, seven (7) abrasive blasting units, and one (1) deburring machine to their existing plant. An application for a Part 70 permit (T-067-10704-00058) for the existing source was received on March 3, 1999 and is currently being reviewed by IDEM.

**Source Definition**

The DaimlerChrysler - Indiana Transmission Plant (ITP) will be considered a separate source from the DaimlerChrysler - Kokomo Casting Plant (KCP) and the DaimlerChrysler - Kokomo Transmission Plant (KTP) (which have been determined by OAM to be one source) because it is approximately six (6) miles from KCP and KTP. Furthermore, approximately 0.1 percent and 23 percent of supplies from KTP and KCP, respectively, are sent to ITP.

**Enforcement Issue**

There are no enforcement actions pending.

**Stack Summary**

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (acfm) | Temperature ($^0$F) |
|---|---|---|---|---|---|
| TBD | Test Cell 1 | 14 | 1 | 2600 | 300-400 |
| TBD | Test Cell 2 | 14 | 1 | 2600 | 300-400 |
| TBD | Test Cell 3 | 14 | 1 | 2600 | 300-400 |
| TBD | Test Cell 4 | 14 | 1 | 2600 | 300-400 |

**Recommendation**

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

Applications for the purposes of this review were received on June 7, 1999 and June 22, 1999.

**Emission Calculations**

See Appendix A of this document for detailed emissions calculations (two (2) pages).

**Potential To Emit of Modification**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|---|---|
| PM | 944.19 |
| PM-10 | 944.19 |
| $SO_2$ | 0.23 |
| VOC | 7.00 |
| CO | 136.50 |
| $NO_x$ | 7.88 |

| HAP's | Potential To Emit (tons/year) |
|---|---|
| Benzene | less than 10 |
| 1,3-Butadiene | less than 10 |
| Formaldehyde | less than 10 |
| Acetaldehyde | less than 10 |
| TOTAL | less than 25 |

**Justification for Modification**

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4), where any modification with a potential to emit greater than or equal to twenty-five (25) tons per year of any of the criteria pollutants.

**County Attainment Status**

The source is located in Howard County.

| Pollutant | Status |
|---|---|
| PM-10 | attainment |
| $SO_2$ | attainment |
| $NO_2$ | attainment |
| Ozone | attainment |
| CO | attainment |
| Lead | attainment |

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and $NO_X$ emissions are considered when evaluating the rule applicability relating to the ozone standards. Howard County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Howard County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive PM emissions are not counted toward determination of PSD and Emission Offset applicability.

**Source Status**

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

| Pollutant | Emissions (tons/year) |
|---|---|
| PM | 0.20 |
| PM-10 | 0.20 |
| $SO_2$ | 0.01 |
| VOC | 0.07 |
| CO | 27.28 |
| NOx | 1.30 |

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

(b) These emissions are based upon the Annual Air Emission Inventory and Emission Statement for 1998.

**Potential to Emit of Modification After Issuance**

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

| | Potential to Emit (tons/year) | | | | | | |
|---|---|---|---|---|---|---|---|
| Process/facility | PM | PM-10 | $SO_2$ | VOC | CO | $NO_X$ | HAPs |
| Four (4) dynamometers | 0.27 | 0.27 | 0.23 | 7.00 | 136.50 | 7.88 | 0.27 |
| Line 204 Shotblast Unit A | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 204 Shotblast Unit B | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 493 Shotblast | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 553 Shotblast | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 586 Shotblast | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 602 Shotblast | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 625 Shotblast | 0.13 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Line 537 Deburring | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Emissions | 1.21 | 1.21 | 0.23 | 7.00 | 136.50 | 7.88 | 0.27 |

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

**Federal Rule Applicability**

(a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

**State Rule Applicability - Entire Source**

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of PM, PM-10 and CO. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

**State Rule Applicability - Individual Facilities**

326 IAC 6-1-2 (Particulate Emission Limitations)

Pursuant to 326 IAC 6-1-2 (Particulate Emission Limitations), facilities shall not allow or permit discharge to the atmosphere of any gases which contain particulate matter in excess of 0.03 grains per dry standard cubic foot (gr/dscf). The seven (7) abrasive blasting units and the one (1) deburring machine shall emit 0.0012, 0.0012, 0.0017, 0.0017, 0.0017, 0.0017, 0.0017, and 0.0011 grains per dry standard cubic foot (gr/dscf) (see Page 1 of 2 of TSD Appendix A), respectively, therefore, the seven (7) abrasive blasting units and the one (1) deburring machine will comply with this 326 IAC 6-1-2 (Particulate Emission Limitations).

326 IAC 9-1-2 (Carbon Monoxide Emission Limits)

The four (4)reciprocating internal combustion engines are not subject to 326 IAC 9-1-2 (Carbon Monoxide Emission Limits). The four (4)reciprocating internal combustion engines are not petroleum refining, ferrous metal smelters or refuse incinerator and burning equipment.

**Compliance Requirements**

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

1. The seven (7) abrasive blasting units and the one (1) deburring machine have applicable compliance monitoring conditions as specified below:

    (a) The Permittee shall record the total static pressure drop across the dust collectors controlling the seven (7) abrasive blasting units and the one (1) deburring machine systems, at least once daily when the seven (7) abrasive blasting units and the one (1) deburring machine systems are in operation. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the dust collectors shall be maintained within the range of 0.5 to 2.5 inches of water or a range established during the latest stack test. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of the above mentioned range for any one reading.

    These monitoring conditions are necessary because the dust collectors for the seven (7) abrasive blasting units and the one (1) deburring machine processes must operate properly to ensure compliance with 326 IAC 6-1-2 (Particulate Emission Limitations) and 326 IAC 2-7 (Part 70).

**Conclusion**

The construction of this proposed modification shall be subject to the conditions of the attached proposed **Part 70 Significant Source Modification No. 067-11093-00058.**

**Appendix A: Emission Calculations**
**Internal Combustion Engines - Gasoline**
**Dynamometers (>250 and <600 HP)**
**Reciprocating**

**Company Name:** Daimler Chrysler Corporation - Indiana Transmission Plant
**Address City IN Zip:** 3660 North US Highway 31, Kokomo, Indiana 46901
**CP#:** 067-11093
**Plt ID:** 067-00058
**Reviewer:** Yvette de los Angeles/EVP
**Date:** 10/25/99

Annual Fuel Usage
gallons/year

87,500.0

| | Criteria Pollutant | | | | | |
|---|---|---|---|---|---|---|
| | PM | PM10 | SO2 | NOx | VOC | CO |
| Emission Factor in lb/1000 gal | 6.20 | 6.20 | 5.31 | 180.00 | 160.0 | 3120.00 |
| Potential Emission in tons/yr | 0.27 | 0.27 | 0.23 | 7.88 | 7.00 | 136.50 |

| | Hazardous Air Pollutant | | | |
|---|---|---|---|---|
| | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde |
| Emission Factor in lb/1000 gal | 6.14 | 2.07 | 3.39 | 1.88 |
| Potential Emission in tons/yr | 0.27 | 0.09 | 0.15 | 0.08 |

**Methodology**

Emission Factors are from the Society of Automotive Engineers Technical Paper No. 912324 and shall be stack tested.

Emission (tons/yr) = [Annual Fuel Usage (gallons/year) x Emission Factor (lb/1000 gal)] / (2,000 lb/ton )

**Appendix A: Process Particulate Emissions**

**Company Name:** Daimler Chrysler Corporation - Indiana Transmission Plant
**Address City IN Zip:** 3660 North US Highway 31, Kokomo, Indiana 46901
**CP:** 067-11093
**Plt ID:** 067-00058
**Reviewer:** Yvette de los Angeles/EVP
**Date:** 10/25/99

**Uncontrolled Potential Emissions (tons/year)**

**A. Baghouses**

| Process | No. of Units | Grain Loading per Actual Cubic Foot of Outlet Air | Air to Cloth Ratio Air Flow (acfm/ft²) | Total Filter Area (ft²) | Control Efficiency | Total (tons/yr) |
|---|---|---|---|---|---|---|
| Line 204 Shotblast Unit A | 1 | 0.0012 | 2.11 | 1,350 | 99.90% | 128.33 |
| Line 204 Shotblast Unit B | 1 | 0.0012 | 2.11 | 1,350 | 99.90% | 128.33 |
| Line 493 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 127.52 |
| Line 553 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 127.52 |
| Line 586 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 127.52 |
| Line 602 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 127.52 |
| Line 625 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 127.52 |
| Line 537 Deburring | 1 | 0.0011 | 0.97 | 1,240 | 99.90% | 49.67 |

Total Emissions Based on Rated Capacity at 8,760 Hours/Year **943.92**

**Controlled Potential Emissions (tons/year)**

**A. Baghouses**

| Process | No. of Units | Grain Loading per Actual Cubic Foot of Outlet Air | Air to Cloth Ratio Air Flow (acfm/ft²) | Total Filter Area (ft²) | Control Efficiency | Total (tons/yr) |
|---|---|---|---|---|---|---|
| Line 204 Shotblast Unit A | 1 | 0.0012 | 2.11 | 1,350 | 99.90% | 0.13 |
| Line 204 Shotblast Unit B | 1 | 0.0012 | 2.11 | 1,350 | 99.90% | 0.13 |
| Line 493 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 0.13 |
| Line 553 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 0.13 |
| Line 586 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 0.13 |
| Line 602 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 0.13 |
| Line 625 Shotblast | 1 | 0.0017 | 1.48 | 1,350 | 99.90% | 0.13 |
| Line 537 Deburring | 1 | 0.0011 | 0.97 | 1,240 | 99.90% | 0.05 |

Total Emissions Based on Rated Capacity at 8,760 Hours/Year and source controls **0.94**

Methodology:

Potential Emissions (uncontrolled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Potential Emissions (controlled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs