

**CONSTRUCTION PERMIT  
OFFICE OF AIR MANAGEMENT**

**Caterpillar, Inc.  
3701 State Road 26 East  
Lafayette, Indiana 47905**

is hereby authorized to construct

- (a) one (1) new paint booth to replace the existing paint booth designated as W-3, with a maximum capacity of 5 diesel engines per hour, utilizing a waterwash for overspray control, with emissions exhausting through stack W-3;
- (b) one (1) new paint booth, designated as W-33, with a maximum capacity of 5 diesel engines per hour, utilizing dry filters for overspray control, with emissions exhausting through stack W-33.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-157-8897-00044	
Issued by:  Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

## Construction Conditions

### General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).
2. That this permit 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.

### Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.
4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit 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.
5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

### First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) 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 facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
  - (b) 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.
  - (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
  - (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).

- (e) The Permittee has submitted their Part 70 permit on December 12, 1996 for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

Phase Construction Time Frame

- 6a. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the IDEM may revoke this permit to construct if the:

- (a) Construction of the new paint booths has not begun within eighteen (18) months from the date of the effective date of this permit or if during the construction of the paint booths, 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.

7. That when the facility is constructed and placed into operation the following operation conditions shall be met:

### **Operation Conditions**

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).
2. That the permittee shall 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.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:
  - (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.
  - (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.
  - (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):

- (a) In the event that ownership of this engine manufacturing facility is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
- (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
- (c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by the IDEM, or other public official having jurisdiction.

PSD Minor Source Limit

7. That the two new paint booths, designated as W-3 and W-33, shall use no more than 5.89 tons of VOC, including coatings, dilution solvents, and cleaning solvents, per month. This limit, in combination with the emissions credits of 31.6 tons per year from the removal of the old surface coating booth, is equivalent to an increase in the potential to emit VOC of 3.25 tons per month (39 tons per year). The old surface coating booth, referred to as booth W-3, shall be rendered inoperable and removed from service. This shall be completed prior to the issuance of the Operation Permit Validation Letter. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

Annual Emission Reporting

8. That pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual statement must be submitted to:

Indiana Department of Environmental Management  
Technical Support and Modeling Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31.

Opacity Limitations

9. That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:

- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
- (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

10. That pursuant to 326 IAC 6-3 (Process Operations):

- (a) The dry filters and water curtain for particulate matter overspray control shall be in operation at all times when the paint booths are in operation.
- (b) The paint booths shall comply with 326 IAC 6-3-2(c) using the following equation:

$$E = 4.10P^{0.67} \quad \text{where: } E = \text{rate of emission in pounds per hour,}$$

P = process weight in tons per hour, if  
P is equal to or less than 60,000 lbs/hr (30 tons/hr)

- (c) Daily inspections shall be performed to verify the placement, integrity and particulate loading of the filters and the water curtain.
- (d) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Volatile Organic Compound (VOC) Limitations

11. That pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of coatings applied to the diesel engines shall be limited to:

Coatings	Limit (pounds of VOC/gallon of coating less water delivered to the applicator)
Air Dried Coat	3.5
Forced Warm Air Dried Coat	3.5

Emission Minimization

12. That pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), solvent sprayed from the application equipment during clean up or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

Reporting Requirements

13. That a log of information necessary to document compliance with operation permit condition nos. 7 and 10 (c) shall be maintained. These records shall be kept for at least the past 36 month period and made available upon request to the Office of Air Management (OAM).

- (a) A quarterly summary to document compliance with operation permit condition no. 7 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

within thirty (30) calendar days after the end of the quarter being reported in the format attached. These records shall include the coating, thinner and clean up solvent usage, material safety data sheet (MSDS) and the date of use.

- (b) Unless otherwise specified in this permit, any notice, report, or other submissions required by this permit shall be timely if:
- (i) Postmarked on or before the date it is due; or
  - (ii) Delivered by any other method if it is received and stamped by IDEM, OAM on or before the date it is due.
- (c) All instances of deviations from any requirements of this permit must be clearly identified in such reports.
- (d) Any corrective actions taken as a result of an exceedance of a limit, an excursion from the parametric values, or a malfunction that may have caused excess emissions must be clearly identified in such reports.

- (e) The first report shall cover the period commencing the postmarked submission date of the Affidavit of Construction.

Open Burning

- 14. That the permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6.

Emergency Reduction Plans

- 15. Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee prepared and submitted written emergency reduction plans (ERPs) consistent with safe operating procedures on December 12, 1996.
- (b) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM shall supply such a plan.
- (c) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.
- (d) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (e) Upon direct notification by IDEM, OAM that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

**Indiana Department of Environmental Management  
Office of Air Management  
Compliance Data Section**

**Quarterly Report**

Company Name: Caterpillar, Inc.  
Location: 3701 State Road 26 East, Lafayette, Indiana 47905  
Permit No.: CP 157-8897  
Source: Surface coating booths W-3 and W-33  
Pollutant: VOC  
Limit: 5.89 tons of VOC per month, including all coatings, dilution solvents,  
and cleaning solvents

Year: \_\_\_\_\_

Month	VOC Usage (tons/month)

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Indiana Department of Environmental Management Office of Air Management

### Technical Support Document (TSD) for New Construction and Operation

#### Source Background and Description

Source Name: Caterpillar, Inc.  
 Source Location: 3701 State Road 26 East, Lafayette, Indiana 47905  
 County: Tippecanoe  
 Construction Permit No.: CP-157-8897-00044  
 SIC Code: 3519  
 Permit Reviewer: Nisha Sizemore

The Office of Air Management (OAM) has reviewed an application from Caterpillar, Inc. relating to the construction and operation of an engine manufacturing facility, consisting of the following equipment:

- (a) one (1) new paint booth designated as W-3, to replace the existing paint booth designated as W-3, with a maximum capacity of 5 diesel engines per hour, utilizing a waterwash for overspray control, with emissions exhausting through stack W-3;
- (b) one (1) new paint booth, designated as W-33, with a maximum capacity of 5 diesel engines per hour, utilizing dry filters for overspray control, with emissions exhausting through stack W-33.

#### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
W-3	prime product booth	50	4	93,720	ambient
W-33	primer booth	45	1.67 x 6	29,910	ambient

#### Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

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

An application for the purposes of this review was received on August 21, 1997, with additional information received on September 22, 1997.

## Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets) for detailed calculations (5 pages).

## Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	86.4	86.4
Particulate Matter (PM10)	86.4	86.4
Sulfur Dioxide (SO <sub>2</sub> )	0.00	0.00
Volatile Organic Compounds (VOC)	157	203
Carbon Monoxide (CO)	0.00	0.00
Nitrogen Oxides (NO <sub>x</sub> )	0.00	0.00
Single Hazardous Air Pollutant (HAP)	48.3	48.3
Combination of HAPs	71.3	71.3

- (a) Allowable emissions are determined from the applicability of rule 326 IAC 8-2-9. See attached spreadsheets for detailed calculations.
- (b) The allowable emissions based on the rules cited are less than the potential emissions, therefore, the allowable emissions are used for the permitting determination.
- (c) Allowable emissions (as defined in the Indiana Rule) of VOC are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.
- (d) Allowable emissions (as defined in the Indiana Rule) of a single hazardous air pollutant (HAP) are greater than 10 tons per year and the allowable emissions of any combination of the HAPs are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, a construction permit is required.

### County Attainment Status

- (a) Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Tippecanoe County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Tippecanoe County has been classified as attainment or unclassifiable for total suspended particulate (TSP) and PM<sub>10</sub>. Therefore, the PM and PM<sub>10</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

### Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	9.00
PM <sub>10</sub>	15.0
SO <sub>2</sub>	1140
VOC	846
CO	2870
NO <sub>x</sub>	13,100

- (a) This existing source is a major stationary source because at least one attainment regulated pollutant is emitted at a rate of 250 tons per year.
- (b) These emissions were based on Facility Quick Look Report, dated July 24, 1997.

### Proposed Modification

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO <sub>2</sub> (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO <sub>x</sub> (ton/yr)
Proposed Modification	24	14	0.00	39	0.00	0.00
PSD or Offset Significant Level	25	15	40	40	100	40

- (a) This modification to an existing major stationary source is not major because the emissions 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.
- (b) The amount of VOC delivered to the applicators of the two surface coating booths is limited to 70.6 tons per year. This limit, in combination with the emissions credits of 31.6 tons per year from the removal of the old surface coating booth, is equivalent to an increase in the potential to emit VOC of 39 tons per year; therefore, the PSD requirements do not apply.

### Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 (T-157-7594-00044) application on December 12, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

### Federal Rule Applicability

There are no New Source Performance Standards (326 IAC 12) and 40 CFR Part 63 applicable to this facility.

There are no National Emissions Standards for Hazardous Air Pollutants (NESHAPs) applicable to this facility.

## State Rule Applicability

### 326 IAC 2-6 (Emission Reporting)

This facility is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 100 tons per year of VOC. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the facility. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

### 326 IAC 2-2 (Prevention of Significant Deterioration)

Pursuant to this rule, the two paint booths designated as W-3 and W-33 shall use no more than 5.89 tons of VOC, including coatings, dilution solvents, and cleaning solvents, per month. This limit, in combination with the emissions credits of 31.6 tons per year from the removal of the old surface coating booth, is equivalent to an increase in the potential to emit VOC of 3.25 tons per month (39 tons per year). The old surface coating booth, referred to as booth W-3, shall be removed from service. This shall be completed prior to issuance of the Operation Permit Validation Letter. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

### 326 IAC 5-1-2 (Visible Emission Limitations)

Pursuant to this rule, except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:

- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
- (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

### 326 IAC 6-3 (Process Operations)

Pursuant to this rule, the following conditions shall apply to paint booth W-3 and paint booth W-33:

- (a) The dry filters and water curtain for particulate matter overspray control shall be in operation at all times when the paint booths are in operation.
- (b) The paint booths shall comply with 326 IAC 6-3-2(c) using the following equation:  
$$E = 4.10P^{0.67}$$
 where: E = rate of emission in pounds per hour,  
P = process weight in tons per hour, if  
P is equal to or less than 60,000 lbs/hr (30 tons/hr)
- (c) Daily inspections shall be performed to verify the placement, integrity and particulate loading of the filters and the water curtain.
- (d) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

### 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations)

Pursuant to this rule the following conditions shall apply:

- (a) The source uses air dried and forced warm air dried coatings. The volatile organic compound (VOC) content of coatings applied to the diesel engines shall be limited to:

Coatings	Limit (pounds of VOC/gallon of coating less water delivered to the applicator)
Air Dried Coat	3.5
Forced Warm Air Dried Coat	3.5

- (b) Solvent sprayed from the application equipment during clean up or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

326 IAC 4-1 (Open Burning)

Pursuant to this rule, the permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6.

326 IAC 1-5-2 (Emergency Reduction Plans; Submission)

Pursuant to this rule, the following conditions shall apply:

- (a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

- (b) These ERPs shall be submitted for approval to:

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

within 180 calendar days from the issuance date of this permit.

- (c) If the ERP is disapproved by IDEM, OAM the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM shall supply such a plan.
- (d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) Upon direct notification by IDEM, OAM that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

**Air Toxic Emissions**

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

- (a) This proposed modification will emit levels of air toxics greater than those that constitute major source applicability according to Section 112 of the Clean Air Act. The concentrations of these air toxics were modeled and found to be (in worst case possible) as follows: The concentrations of these air toxics were compared to the Permissible Exposure Limits (PEL) developed by the Occupational Safety and Health Administration (OSHA). The Office of Air Management (OAM) does not have at this time any specific statutory or regulatory authority over these substances.

Air Toxic Analysis

Pollutant	Rate (lb/hr)	Rate @ 8760 hr/yr (ton/yr)	Rate @ hr/yr (ton/yr)	Modeled Concentration (Fg/m <sup>3</sup> )	OSHA PEL (Fg/m <sup>3</sup> )	% OSHA PEL
xylene	11.03	48.31	48.31	505.6	435,000	0.12
ethyl benzene	5.24	22.96	22.96	240.1	435,000	0.06
TOTAL	16.27	71.27	71.27			

Methodology:

Rate ton/yr = (rate lb/hr)\*(hr/yr of operation)

- (b) The applicant has been notified in writing that the air toxic emissions exceed the major source applicability levels stated by Section 112 of the Clean Air Act Amendments, and that it would be beneficial, both to the applicant and to the public, for the applicant to take steps to reduce or eliminate these air toxic emissions.
- (c) See attached spreadsheets for detailed air toxic calculations.

## **Conclusion**

The construction of these two paint booths will be subject to the conditions of the attached proposed Construction Permit No. CP-157-8897-00044.

# Indiana Department of Environmental Management Office of Air Management

## Addendum to the Technical Support Document for New Construction and Operation

Source Name: Caterpillar, Inc.  
Source Location: 3701 State Road 26 East, Lafayette, Indiana 47905  
County: Tippecanoe  
Construction Permit No.: CP-157-8897-00044  
SIC Code: 3519  
Permit Reviewer: Nisha Sizemore

On November 6, 1997, the Office of Air Management (OAM) had a notice published in the Journal and Courier, Lafayette, Indiana, stating that Caterpillar, Inc. had applied for a construction permit to construct and operate two (2) surface coating booths with dry filters and a water curtain as overspray control. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Upon further review, the OAM has decided to make the following changes:

1. Operation condition number 13 now requires Caterpillar to keep records of the daily inspections of the dry filters and water curtain, as required by operation condition number 10 (c).

On November 10, 1997, Caterpillar submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows:

### Comment #1

Caterpillar has already submitted an Emergency Reduction Plan. An updated version was submitted with the Title V application.

### Response #1

Operation condition number 15 has been changed to the following:

#### Emergency Reduction Plans

15. Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):
  - (a) The Permittee prepared and submitted written emergency reduction plans (ERPs) consistent with safe operating procedures on December 12, 1996.
  - (b) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM shall supply such a plan.
  - (c) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

- (d) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (e) Upon direct notification by IDEM, OAM that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

**Appendix A: Emissions Calculations  
VOC limit pursuant to 326 IAC 8-2-9  
From Surface Coating Operations**

**Company Name: Caterpillar, Inc.  
Address City IN Zip: 3701 State Road 26 East, Lafayette, IN 47905  
CP: 157-8897  
Plt ID: 157-00044  
Reviewer: Nisha Sizemore**

Facility	Gal of Mat (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year
Booth W-3	1.870000	5.000	3.50	3.50	32.73	785.40	143.34
Booth W-33	0.179690	5.000	3.50	3.50	3.14	75.47	13.77

**Allowable Emissions per 326 IAC 8-2-9**

**35.87**

**860.87**

**157.11**



## Appendix A: Emissions Calculations

**Company Name:** Caterpillar, Inc.  
**Address City IN Zip:** 3701 State Road 26 East, Lafayette, IN 47905  
**CP:** 157-8897  
**Plt ID:** 157-00044  
**Reviewer:** Nisha Sizemore

### Potential Emissions (tons/yr)

	PM	PM10	VOC	SO2	NOx	CO	Xylene	Ethyl Benzene	Total HAPs
new booth W-33	10.19	10.19	33.47	0.00	0.00	0.00	3.59	0.60	4.19
replacement booth W-3	76.25	76.25	169.92	0.00	0.00	0.00	44.72	22.36	67.08
Totals	86.44	86.44	203.39	0.00	0.00	0.00	48.31	22.96	71.27

### Future Potential Emissions minus Past Actual Emissions (tons/yr)

	PM	PM10	VOC	SO2	NOx	CO	Xylene	Ethyl Benzene	Total HAPs
new booth W-33	0.20	0.20	33.47	0.00	0.00	0.00	3.59	0.60	4.19
replacement booth W-3	1.52	1.52	169.92	0.00	0.00	0.00	44.72	22.36	67.08
W-3 booth being removed	0.29	0.29	31.62	0.00	0.00	0.00	8.49	4.24	12.73
Totals	1.43	1.43	171.77	0.00	0.00	0.00	39.82	18.72	58.54

### Limited Emissions (tons/yr)

	PM	PM10	VOC
new booths W-3 and W-33	24.00	14.00	39.00
credits from old coating booth	0.29	0.29	31.62
Totals	24.29	14.29	70.62



**Appendix A: Emissions Calculations  
VOC, Particulate and HAPs  
From Surface Coating Operations**

**Company Name: Caterpillar, Inc.**  
**Address City IN Zip: 3701 State Road 26 East, Lafayette, IN 47905**  
**CP: 157-8897**  
**Plt ID: 157-00044**  
**Reviewer: Nisha Sizemore**

Material	Density (Lb/Gal)	Weight % Volatile (H2O& Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Vol (solids)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential ton/yr	lb VOC /gal solids	Transfer Efficiency
63-C105A primer	10.92	31.80%	0.0%	31.8%	0.0%	68.20%	0.250000	5.000	3.47	3.47	4.34	104.18	19.01	10.19	5.09	75%
S-0372 solvent	7.04	100.00%	0.0%	100.0%	0.0%	0.00%	0.031250	5.000	7.04	7.04	1.10	26.40	4.82	0.00	ERR	75%
S-0372 solvent	7.04	100.00%	0.0%	100.0%	0.0%	0.00%	0.062500	5.000	7.04	7.04	2.20	52.80	9.64	0.00	ERR	75%

**State Potential Emissions** **Add worst case coating to all solvents** **7.64** **183.38** **33.47** **10.19**  
**Emissions after controls (dry filters)** **0.20**

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) \* Weight % Organics) / (1-Volume % water)  
Pounds of VOC per Gallon Coating = (Density (lb/gal) \* Weight % Organics)  
Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr)  
Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr) \* (24 hr/day)  
Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr) \* (8760 hr/yr) \* (1 ton/2000 lbs)  
Particulate Potential Tons per Year = (units/hour) \* (gal/unit) \* (lbs/gal) \* (1- Weight % Volatiles) \* (1-Transfer efficiency) \* (8760 hrs/yr) \* (1 ton/2000 lbs)  
Pounds VOC per Gallon of Solids = (Density (lbs/gal) \* Weight % organics) / (Volume % solids)  
Total = Worst Coating + Sum of all solvents used

Material	Density (Lb/Gal)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Weight % Xylene	Weight % ethyl benzene	Xylene Emissions (ton/yr)	ethyl benzene Emissions (ton/yr)
63-C105A primer	10.9	0.250000	5.000	6.00%	1.00%	3.59	0.60
S-0372 solvent	7.0	0.031250	5.000	0.00%	0.00%	0.00	0.00
S-0372 solvent	7.0	0.062500	5.000	0.00%	0.00%	0.00	0.00

Total State Potential Emissions **3.59** **0.60**  
Totals HAPs **4.19**