

PART 70 PSD/SIGNIFICANT SOURCE MODIFICATION OFFICE OF AIR QUALITY

**Toyota Motor Manufacturing, Indiana, Inc.
4000 Tulip Tree Drive
Princeton, Indiana 47670**

(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.

PSD/Significant Source Modification No.: 051-16470-00037	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	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 Quality (OAQ). 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 automobile and light duty truck manufacturing plant.

Responsible Official: R. J. Reynolds, Vice President of Administration & Manufacturing Planning
Source Address: 4000 Tulip Tree Drive, Princeton, Indiana 47670
Mailing Address: P.O. Box 4000 - Mail Drop: PE-I, Princeton, Indiana 47670
General Source Phone Number: (812) 387-2000
SIC Code: 3711
County Location: Gibson
Source Location Status: Attainment for all criteria pollutants
Source Status: Part 70 Permit Program
Major Source, under PSD Rules;
Major 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 an automobile and/or light duty truck assembly plant.

Entire Source

(a) Plant #1 (West Plant) and plant #2 (East Plant) automobile and/or light duty truck assembly operation. Plant #1 started production in 1998. Plant #2 started production in 2002. Once the modification to the Primer Surfacer and Topcoat Systems are completed the entire source will have a capacity to produce 450,000 vehicles per year. The overall source consists of the following emission units:

- (1) Plant-Wide Combustion
- (2) Primary Surface Coating Operations - Electrodeposition (ED) Systems
- Primer Surfacer Systems
- Topcoat Systems
- (3) Plastic Coating Operations
- (4) Miscellaneous Coating Operations
- (5) Repair Operations
- (6) Plant-wide Miscellaneous Operations
- (7) Storage Tanks and Gasoline Dispensing, and
- (8) Insignificant Activities

Plant #2 (East Plant)

(b) PRIMER SURFACER/GUIDECOAT SYSTEM

- (1) One (1) primer surfacer/guidecoat system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17b, equipped with air atomized, electrostatic bells, and high volume low pressure (HVLP) spray guns, wet scrubbers to control PM overspray, and consists of the following:

- (A) One (1) sealer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (B) One (1) primer surfacer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (C) One (1) primer surfacer coat booth, with one (1) carbon adsorption system, known as CAPSB2, and one (1) regenerative thermal oxidizer known as Booth Thermal Oxidizer #1 (CD-06), for VOC control;
 - (D) One (1) PVC undercoat booth, equipped with dry filters to control PM overspray; and
 - (E) One (1) anti-chip booth, equipped with dry filters to control PM overspray.
- (c) **TOPCOAT SYSTEM**
- (1) One (1) topcoat system, known as Topcoat A, installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, known as Topcoat Oven A, with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #3 (CD-07), for VOC control;
 - (B) One (1) topcoat booth, known as Topcoat Booth A, with one (1) carbon adsorption system, known as CATCCC1, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #3 (CD-07), for VOC control; and
 - (C) One (1) blackout/cavity wax booth, equipped with a wet scrubber to control PM overspray when using blackout and dry filters to control PM overspray when using wax.
 - (2) One (1) topcoat system, known as Topcoat B, installed in 2002, located in Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, Topcoat Oven B with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #4 (CD-08), for VOC control; and
 - (B) One (1) topcoat booth, known as Topcoat Booth B, with one (1) carbon adsorption system, known as CATCCC2, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #4 (CD-08), for VOC control.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

This stationary source does not include any insignificant activities, as defined in 326 IAC 2-7-1(21):

A.4 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 Definitions [326 IAC 2-7-1]

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

B.2 Effective Date of the Permit [IC13-15-5-3]

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

B.3 Revocation of Permits [326 IAC 2-2-8]

Pursuant to 326 IAC 2-2-8(a)(1), 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 eighteen (18) months or more.

B.4 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 Quality (OAQ), 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.
- (e) In the event that the Part 70 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 Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.
 - (2) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.
 - (3) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is

issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.

B.5 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60.390 Subpart MM, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

- (a) Commencement of construction date for the modification (no later than 30 days after such date);
- (b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
- (c) Actual start-up date (within 15 days after such date); and
- (d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

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

The application and enforcement of these standards have been delegated to the IDEM, OAQ. The requirements of 40 CFR Part 60 are also federally enforceable.

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 permit or required by an applicable requirement, any application form, report, or compliance certification submitted 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, using the attached Certification Form, with each submittal requiring certification.
- (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 permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) when operation begins, 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; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs 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 Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The PMP and the PMP extension notification do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall implement the PMPs as necessary to ensure that failure to implement a PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or contributes to any violation. The PMP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (d) Records of preventive maintenance shall be retained for a period of at least five (5) years. These records shall be kept at the source location for a minimum of three (3) years. 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 request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

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

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

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

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

Any such application shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(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 Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(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 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

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

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit 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.7 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 following the completion of the proposed modification to the process, 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, OAQ.

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

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.8 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

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

C.9 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented within 90 days of issuance of this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.10 Maintenance of Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

- (a) In the event that a breakdown of the emission monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this permit until such time as the monitoring equipment is back in operation. In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less often than once an hour until such time as the continuous monitor is back in operation.
- (b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

C.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

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

C.12 Compliance Response Plan - Preparation, Implementation, Records, and Reports[326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:
- (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
 - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.
- (b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
- (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan; or
 - (2) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
 - (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
 - (4) Failure to take reasonable response steps shall constitute a violation of the permit.
- (c) The Permittee is not required to take any further response steps for any of the following reasons:
- (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.

- (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.
- (3) An automatic measurement was taken when the process was not operating.
- (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.
- (e) The Permittee shall record all instances when response steps are 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.
- (f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.13 Emergency Provisions [326 IAC 2-7-16]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
 - (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
 - (2) The permitted facility was at the time being properly operated;
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
 - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality,
Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967; and

Telephone Number: 1-888-672-8323 (Southwest Regional Office)
Facsimile Number: 812-436-2572

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

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

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

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

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
 - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
 - (e) IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.
 - (f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.
 - (g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]
[326 IAC 2-7-6]

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- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

- (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, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The documents submitted pursuant to this condition do 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.15 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

- (a) Records of all required data, reports 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. 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 request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015
- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit 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, OAQ, on or before the date it is due.
- (c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do 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 permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

D.1

FACILITY OPERATION CONDITIONS

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

Plant #1 (West Plant) and Plant #2 (East Plant) automobile and/or light duty truck assembly operation. Plant #1 started production in 1998. Plant #2 started production in 2002. Modification to the Primer Surfacer and Topcoat are to be completed in 2003. Once the modification to the Primer Surfacer and Topcoat Systems are completed the entire facility will have a capacity to produce 450,000 vehicles per year. The overall facility consists of the following emission units:

Plant- wide Combustion

Primary Surface Coating Operations - Electrodeposition (ED) Systems
- Primer Surfacer Systems
- Topcoat Systems

Plastic Coating Operations

Miscellaneous Coating Operations

Repair Operations

Plant-wide Miscellaneous Operations

Storage Tanks and Gasoline Dispensing, and

Insignificant Activities

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

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

D.1.1 Prevention of Significant Deterioration (PSD) Best Available Control Technology (BACT) [326 IAC 2-2]

Pursuant to 326 IAC 2-2, Prevention of Significant Deterioration (PSD) the total VOC input from the automobile and light duty truck assembly plant (Plant #1 and Plant #2) shall be limited such that the VOC emissions shall not exceed 3,309 tons per twelve (12) consecutive month period, with compliance demonstrated at the end of each month.

This condition shall supersede Operating Condition nos. 5 and 6 found in permit CP 051-5391-00037, issued on August 9, 1996.

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

D.1.2 Record Keeping Requirements

(a) To document compliance with Condition D.1.1, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken as stated below and shall be complete and sufficient to establish compliance with the source wide VOC emissions limit established in Condition D.1.1.

(1) The VOC content of each coating material and solvent used.

(2) The amount of coating material and solvent.

(A) Records shall include, but not limited to purchase orders, invoices and material Safety Data Sheets.

(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.

- (3) The cleanup solvent usage for each month;
 - (4) The total VOC usage for each month; and
 - (5) The weight of VOCs emitted for each month.
 - (6) The continuous temperature records at least every 15 minutes (minimum of four equally-spaced readings per hour) for the thermal oxidizer and the average temperature as determined during the most recent compliant stack test required in Section D.2. and Section D.3 used to demonstrate compliance with the limit in Condition D.1.1.
- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements of this permit.

D.1.3 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit using the reporting forms located at the end of this permit or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.2 FACILITY OPERATION CONDITIONS

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

Plant #2 (East Plant)

(b) **PRIMER SURFACER/GUIDECOAT SYSTEM**

- (1) One (1) primer surfacer/guidecoat system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17b, equipped with air atomized, electrostatic bells, and high volume low pressure (HVLP) spray guns, wet scrubbers to control PM overspray, and consists of the following:
- (A) One (1) sealer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (B) One (1) primer surfacer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (C) One (1) primer surfacer coat booth, with one (1) carbon adsorption system, known as CAPSB2, and one (1) regenerative thermal oxidizer known as Booth Thermal Oxidizer #1 (CD-06), for VOC control;
 - (D) One (1) PVC undercoat booth, equipped with dry filters to control PM overspray; and
 - (E) One (1) anti-chip booth, equipped with dry filters to control PM overspray.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

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

D.2.1 Best Available Control Technology for Prevention of Significant Deterioration (PSD) [326 IAC 2-2]
Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration), the Best Available Control Technology (BACT) for Primer Surfacers/Guidecoat operations shall be the following:

- (a) a limit of 2.37 pounds of VOC per gallon of applied coating solids (0.285 kilograms of VOC per liter applied coating solids).

This condition shall supersede the Primer Surfacers/Guidecoat VOC limit in Operating Condition No. 9 in permit CP 051-5391- 00037, issued on August 9, 1996.

- (b) The Thermal Oxidizer #1 shall be operated at all times whenever the process it controls is in operation and shall have the following minimum destruction efficiency:

Facility	% Destruction Efficiency
Primer Coat Ovens	95%
Primer Coat Booths *	80.75%

* Combined system efficiencies of the thermal oxidizer and the carbon adsorber.

This condition shall supersede the efficiencies for these facilities in Operating Condition No. 3 in permit CP 051-5391- 00037, issued on August 9, 1996.

D.2.2 Volatile Organic Compounds [326 IAC 8-1-2]

- (a) Pursuant to 326 IAC 8-2-2, the Permittee shall not allow the discharge into the atmosphere of any volatile organic compound (VOC) in excess of 0.23 kilogram per liter of coating (1.9 pounds per gallon), excluding water delivered to the applicator from prime application including electrodeposition (ED), primer surfacer/guidecoat operation, flash-off area, and oven operation.
- (b) Pursuant to 326 IAC 8-1-2(a) this emission limitation shall be achieved through a combination of carbon adsorption on the primer surfacer coat booth, thermal incineration on the primer surfacer coat booth and the primer surfacer and electrodeposition (ED) ovens, and the use of higher solids (low solvent) coatings.
- (c) Pursuant to 326 IAC 8-1-2(b) the prime application including electrodeposition (ED) and primer surfacer/guidecoat operation shall be limited to no greater than the equivalent of 2.6 pounds of VOC per gallon of coating solids as allowed in (a) of this condition. This equivalent limit shall be determined using the following equation:

$$E = \frac{L}{1 - L/D}$$

- Where: L = Applicable emission limit from this article in pounds of VOC per gallon of coating.
- D = Density of VOC in coating in pounds per gallon of VOC.
- E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

This condition shall supersede the limit for the Prime Coat, Flash Off Area and Oven in Operating Condition no. 13 of permit CP 051-5391- 00037, issued on August 9, 1996.

D.2.3 Particulate Matter (PM) [40 CFR 52 Subpart P][326 IAC 6-3-2]

- (a) Pursuant to 40 CFR 52 Subpart P, the allowable particulate matter emissions rate from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour.
- (b) Pursuant to 326 IAC 6-3-2, the Prime and Primer Surfacer/Guidecoat surface coating operations at the Plant #2 (East Plant) shall be controlled by a dry filter, waterwash, or an equivalent control device, subject to the following:
 - (1) The source shall operate the control device in accordance with manufacturer's specifications.
 - (2) If overspray is visibly detected at the exhaust or accumulates on the ground, the source shall inspect the control device and do either of the following no later than four (4) hours after such observation:

- (A) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (B) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

If overspray is visibly detected, the source shall maintain a record of the action taken as a result of the inspection, any repairs of the control device or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

Once the Part 70 permit is issued, section (2) of this condition shall not apply.

D.2.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit is required for the Plant #2 (East Plant) Primer Surfacer Operations known as Unit 17b including the control devices.

D.2.5 General provisions Relating to NSPS [326 IAC 12-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart MM.

D.2.6 New Source Performance Standards for Automobile and light Duty Truck Surface Coating Operations - VOC Limit [326 IAC 12 and 40 CFR Part 60.392]

Pursuant to 40 CFR Part 60.392, Subpart MM, the VOC emissions from the Plant #2 (East Plant) Primer Surfacer/Guidecoat System, known as Emission Unit 17b, shall not exceed 1.40 kilogram of VOC per liter applied coating solids (11.64 pounds of VOC per gallon of applied coating solids).

This condition shall supersede the limit for the Primer Surfacer/Guidecoat in Operating Condition No.11 in permit CP 051-5391- 00037, issued on August 9, 1996.

Compliance Determination Requirements

D.2.7 Automobile and Light Duty Truck Coating Operations [326 IAC 8-2-2]

Pursuant to 326 IAC 8-1-2(a)(7), Compliance Methods for 326 IAC 8-2-2 or Condition D.2.2, the Permittee shall determine on a daily volume weighted average all coatings applied at the Plant #2 (East Plant) Primer System, taking into account the VOC content of the coating used on a daily basis and the overall control efficiencies of the capture and control system for the Carbon Adsorption system on the Primer Surfacer Coat Booth, and the Thermal Oxidizer on the Primer Surfacer Coat Booth and the Primer Surfacer and ED Ovens. The following calculation methodology shall be performed for each day of operation in order to demonstrate compliance with the equivalent emission limitation of 2.6 pounds of VOC per gallon of coating solids:

- (1) Calculate the mass of VOC emitted each day for each segment of the affected facility by the following equation where “n” is the total number of coatings used and “m” is the total number of VOC solvents used. A segment is each process in the affected facility subject to a specific control system configuration.

$$D_s = \sum_{i=1}^{n+m} [L_{ci} D_{ci} W_{oi}] \times [1 - CE]$$

Where:

D_s = total mass of VOCs emitted for a particular day from all coatings plus solvents in each segment of the affected facility, (pounds)

L_{ci} = Volume of each coating or diluent solvent (i) consumed, as received (gallons)

D_{ci} = Density of the coating or diluent solvent (i) as received (pounds/gallon)

W_{ci} = Weight fraction of VOCs in the coating or diluent solvent. In pounds VOC per pound of coating or diluent solvent. For diluent solvents $W_{ci} = 1$.

CE = the overall control efficiency (expressed as a decimal) of the control system for the particular segment of the affected facility. The value for CE shall be based on the most recent compliance test to determine the overall efficiency (capture and control) of the control system for the particular segment of the affected facility. For segments of the affected facility which do not use control devices, CE = zero.

- (2) Calculate the total mass of VOCs emitted for all segments of the affected facility as follows:

$$D_t = \sum D_s$$

Where:

D_t = Total Mass of VOCs emitted from all segments of the affected facility (pounds).

- (3) Calculate the total solids in gallons used each day as follows:

$$L_{ds} = \sum_{i=1}^n L_{ci} V_{si}$$

Where:

L_{ds} = Volume of solids in coatings consumed (gallons)

L_{ci} = Volume of each coating (i) used each day as received (gallons)

V_{si} = Proportion of solids by volume in each coating (i) as received

- (4) Calculate the daily weighted average VOC (DWA) emissions in pounds of VOC per gallons of coating solids as follows:

$$DWA = D_t / L_{ds}$$

The affected facility will be in compliance if the value for DWA is equal to or less than 2.6 pounds of VOC per gallon of coating solids.

D.2.8 Particulate Dry Filters, and Wet Scrubbers

The Particulate Dry Filters, and Wet Scrubbers shall be in operation at all times the Primer Surfacer/Guidecoat process is in operation.

This condition shall supersede Operating Condition No.19 in permit CP 051-5391- 00037, issued on August 9, 1996, pertaining to the Primer Surfacer/Guidecoat Booths.

D.2.9 Thermal Oxidizer

Pursuant to 40 CFR Part 60.394, Toyota shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:

- (a) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox.
- (b) Each temperature measurement device shall have an accuracy of the greater of ± 0.75 percent of the temperature being measured expressed in degrees Celsius or ± 2.5 °C.

- (c) Each temperature measurement device shall be equipped with a recording device so that a permanent record is produced.

This condition shall supersede Operating Condition No.18 in permit CP 051-5391- 00037, issued on August 9, 1996, pertaining to the Primer Surfacer automatic zones only.

D.2.10 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

- (a) Within sixty (60) days after achieving the maximum production rate at which the Primer Surfacer/Guidecoat process from the modification will be operated but no later than 180 days following the completion of all proposed modifications to the process, or within 2 ½ years of the issuance date of the permit modification whichever comes first, the Permittee shall perform control efficiency testing utilizing methods as approved by the Commissioner.
- (b) The Permittee shall determine the minimum operating temperature and duct pressure or fan amperage for the thermal oxidizers from the most recent valid stack test that demonstrate compliance with the VOC limits in conditions D.1.1 of Section D.1 and conditions D.2.1 and D.2.2.
- (c) IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the VOC limit specified in D.1.1 of Section D.1 and conditions D.2.1 and D.2.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.
- (d) This test shall be repeated at least once every two and half (2.5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing of the Part 70 Permit.

D.2.11 Testing Requirements [326 IAC 12-1-2 [40CFR Part 60.393, Subpart MM]

- (a) Pursuant to Part 60.393, Toyota shall conduct an initial performance test, after the modification has been constructed in accordance with § 60.8(a) within 60 days after achieving maximum production rate at which the Primer Surfacer/Guidecoat process from the modification will be operated but no later than 180 days after initial startup of this modification. **Note: Each monthly calculation is a performance test for the purpose of this subpart.**
- (b) Section 60.8(d) and (f) do not apply to the performance procedures required by this section.
- (c) Toyota shall use the following procedures for determining the monthly volume weighted average mass of VOC emitted per volume of applied coating solids:
 - (1) Toyota shall use the following procedures for each affected facility which does not use a capture system and a control device to comply with the applicable emission limit specified under § 60.392:
 - (A) Calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. Toyota shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by Method 24. The IDEM, OAQ may require Toyota who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by Method 24 or an equivalent or alternative method. Toyota shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. The volume weighted average of the total mass of VOC per volume of coating solids used each calendar month will be determined by the following procedures:

- (i) Calculate the mass of VOC used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used and “m” is the total number of VOC solvents used:

$$M_o + M_d = \sum_{i=1}^n L_{ci} D_{ci} W_{oi} + \sum_{j=1}^m L_{dj} D_{dj}$$

[* $L_{dj} D_{dj}$ will be zero if no VOC solvent is added to the coatings, as received].

Where:

- M_o = total mass of VOC in coatings as received (kilograms, kg)
- M_d = total mass of VOC in dilution solvent, kg
- L_{ci} = Volume of each coating (i) consumed, as received (liters)
- D_{ci} = Density of the coating (i) as received (kg/l)
- L_{dj} = Volume of each type VOC dilution solvent (j) added to the coatings, as received (liters)

- (ii) Calculate the total volume of coating solids used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used:

$$L_s = \sum_{i=1}^n L_{ci} V_{si}$$

Where:

- L_s = Volume of solids in coatings consumed (liters)
- V_{si} = Proportion of solids by volume in each coating (i) as received

- (iii) Select the appropriate transfer efficiency (T) from the following tables for each surface coating operation:

Application method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.39
Air Atomized Spray (solvent-borne coating)	0.50
Manual Electrostatic Spray	0.75
Automatic Electrostatic Spray	0.95
Electrodeposition	1.00

The values in the table above represent an overall system efficiency which includes a total capture of purge. If a spray system uses line purging after each vehicle and does not collect any of the purge material, the following table shall be used:

Application method	Transfer efficiency
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Air Atomized Spray (waterborne coating)	0.30
Air Atomized Spray (solvent-borne coating)	0.40
Manual Electrostatic Spray	0.62
Automatic Electrostatic Spray	0.75

If Toyota can justify to the IDEM, OAQ's satisfaction that other values for transfer efficiencies are appropriate, the IDEM, OAQ will approve their use on a case-by-case basis. (1) When more than one application method (l) is used on an individual surface coating operation, Toyota shall perform an analysis to determine an average transfer efficiency by the following equation where "n" is the total number of coatings used and "p" is the total number of application methods:

$$T = \frac{\sum_{i=1}^n T_i V_{si} L_{cil}}{\sum_{l=1}^p L_s}$$

- (iv) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s T}$$

- (2) Toyota shall use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with the applicable emission limit specified under § 60.392:

- (A) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (B) Calculate the volume weighted average mass of VOC per volume of applied solids emitted after the control device, by the following equation:

$$N = G[1 - FE]$$

Where:

- N = Volume weighted average mass of VOC per volume of applied coating solids after the control device
- G = Volume weighted average mass of VOC per volume of applied solids (kg/l)
- F = Fraction of total VOC which is emitted by an affected facility that enters the control device
- E = VOC destruction efficiency of the control device

- (1) Determine the fraction of total VOC which is emitted by an affected facility that enters the control device by using the following equation where "n" is the total number of stacks

entering the control device and “p” is the total number of stacks not connected to the control device:

$$F = \frac{\sum_{i=1}^n Q_{bi} C_{bi}}{\sum_{i=1}^n Q_{bi} C_{bi} + \sum_{k=1}^p Q_{fk} C_{fk}}$$

Where:

- F = fraction of total VOC which is emitted by an affected facility that enters the control device
- Q_{fk} = volumetric flow rate of the effluent gas flowing through exhaust stack (k) not entering the control device (dry standard cubic meters per hour)
- C_{fk} = concentration of VOC (as carbon) in the effluent gas flowing through exhaust stack (k) not entering the control device (ppm by volume)

If Toyota can justify to the IDEM, OAQ satisfaction that another method will give comparable results, the IDEM, OAQ will approve its use on a case-by-case basis.

- (A) In subsequent months, Toyota shall use the most recently determined capture fraction for the performance test.

- (2) Determines the destruction efficiency of the control device using values of the volumetric flow rate of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation where “n” is the total number of stacks entering the control device and “m” is the total number of stacks leaving the control device:

$$E = \frac{\sum_{i=1}^n Q_{bi} C_{bi} - \sum_{j=1}^m Q_{aj} C_{aj}}{\sum_{i=1}^n Q_{bi} C_{bi}}$$

Where:

- E = VOC destruction or removal efficiency of the control device,
- Q_{aj} = volumetric flow rate of the effluent gas flowing through stack (j) leaving the control device (dry standard cubic meters per hour),
- Q_{bi} = volumetric flow rate of the effluent gas flowing through stack (i) entering the control device (dry standard cubic meters per hour),

- (A) In subsequent months, Toyota shall use the most recently determined VOC destruction efficiency for the performance test.

- (3) If an emission control device controls the emissions from more than one affected facility, Toyota shall measure the VOC concentration (C_{bi}) in the effluent gas entering the control device (in parts per million by volume) and the volumetric flow rate (Q_{bi}) of the effluent gas (in dry standard cubic meters per hour) entering the device through each stack. The destruction or removal efficiency determined using these data shall be applied to each affected facility served by the control device.
- (C) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance.
- (D) Toyota shall use the following procedures for each affected facility which uses a capture system and a control device that recovers the VOC (e.g., carbon adsorber) to comply with the applicable emission limit specified under § 60.392.
- (1) Calculate the mass of VOC ($M_o + M_d$) used during each calendar month for each affected facility as described under §60.393(c)(1)(i).
- (2) Calculate the total volume of coating solids (L_s) used in each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (3) Calculate the mass of VOC recovered (M_r) each calendar month for each affected facility by the following equation: $M_r = L_r D_r$
- (4) Calculate the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device during a calendar month by the following equation:
- $$N = \frac{M_o + M_d - M_r}{L_s T}$$
- (A) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance.

D.2.12 Volatile Organic Compounds (VOC)

Compliance with the VOC content and usage limitations contained in Condition D.2.1, D.2.2, and D.2.6 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) using formulation data supplied by the coating manufacturer. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

This Condition shall supersede Operating Condition No. 29 in permit CP 051-5391-00037, issued on August 9, 1996.

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

D.2.13 Monitoring [326 IAC 2-2] [326 IAC 12 and 40 CFR Part 60.394]

Pursuant to 326 IAC 2-2, Prevention of Significant Deterioration (PSD) requirements and 40 CFR Part 60.394;

- (a) the thermal oxidizer shall maintain at or above the minimum operating temperature of 1350 °F until a minimum operating temperature has been established during the most recent compliance stack test to achieve compliance with conditions D.2.1, D.2.2, and D.1.2 of Section D.1.
- (b) a continuous monitoring system shall be calibrated, maintained, and operated on the Thermal Oxidizer to continuously record combustion temperature of any effluent gas incinerated to achieve compliance with Conditions D.2.1, D.2.2, D. 2.6, and Condition D.1.1 of Section D.1. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports whenever a three (3) hour average temperature of the thermal oxidizer remains more than 28 °C (50 °F) below 1350 °F or below the temperature at which compliance with VOC limits in Conditions D.2.1, D.2.2, D. 2.6, and Condition D.1.1 of Section D.1 were demonstrated using the most recent measurement of the Thermal Oxidizer efficiency. A three (3) hour average temperature that remains more than 28 °C (50 °F) below 1350 °F is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports shall be considered a violation of this permit
- (c) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in D.2.1, D.2.2 and Condition D.1.1 of Section D.1, as approved by IDEM.
- (d) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

D.2.14 Monitoring

- (a) Daily visual inspections shall be performed for all surface coating booths used in the vehicle production to verify that for the wet scrubber systems:
 - (1) The continuous underflow water wash is operating properly to provide full coverage of the flood pan, and
 - (2) Weekly observations shall be made of the wet scrubbers to determine whether visible overspray is leaving the booths.
- (b) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the surface coating booth stack while one or more of the booths are in operation. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.
- (c) Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable change in overspray emission, or evidence of overspray emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.
- (d) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

D.2.15 Compliance Assurance Monitoring [40 CFR 64]

- (a) A Compliance Assurance Monitoring (CAM) Plan, in accordance with 40 CFR 64, is required for Emission Unit 17b because the potential to emit VOC before controls is greater than one hundred (100) tons per year and the source is subject to the limitations contained in this permit. The CAM plan for Emission Unit 17b was submitted on May 31, 2002 for the use of carbon adsorption units and thermal oxidizers for VOC control for these emission units in order to comply with this permit. The CAM requirements of this section represent the information provided in the CAM plan submitted.
- (b) The Permittee shall monitor the carbon adsorption system known as CAPSB2. During coating operations, a three (3) hour period during which the average desorb temperature measured is lower than the specified indicator value will require a review of the process. This involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there is an excursion, the Permittee must record it and if necessary, initiate corrective action.
- (c) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. The Permittee shall monitor the natural gas-fired regenerative thermal oxidizer known as CD-06, as follows:
 - (1) During coating operations, a three (3) hour period during which the average temperature measured is lower than the specified value by more than 28°C (50°F) will require a review of the process. This involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there is an excursion, the Permittee must record it and if necessary, initiate corrective action.
 - (2) The specified value for the thermal oxidizer is the average temperature during the most recent control device performance test at which the destruction efficiency was determined. Prior to the performance test on the unit the specified value shall be 1350°F. The temperature sensor is to be located in the exhaust stream of the combustion chamber as recommended by the manufacturer or consistent with the configuration utilized to measure the combustion temperature during the most recent control device performance test.
 - (3) The indicator ranges for carbon adsorption system CAPSB2 and the regenerative thermal oxidizer known as CD-06, will be established within six (6) months after start-up of the equipment or within six (6) months after the issuance of this permit, whichever comes first.
 - (4) The following quality assurance and quality control is required for the carbon adsorption system known as CAPSB2: Accuracy of the thermocouple will be verified by a second, or redundant thermocouple probe inserted at the inlet to the desorption zone. This validation check will be conducted annually. The acceptance criterion is ± 30 °F. Alternatively, the thermocouple can be re-calibrated annually.
 - (5) The following quality assurance and quality control is required for the natural gas-fired regenerative thermal oxidizer known as CD-06. The operating temperature measuring device shall be calibrated, maintained and operated according to accepted practice and manufacturer's specifications. The temperature-measuring device shall meet current NSPS, Subpart MM requirements of ± 0.75 percent of the combustion temperature being measured expressed in degrees Celsius or ± 2.5 °C whichever is greater.
 - (6) The following data averaging period is required for the carbon adsorption system known as CAPSB2, and the natural gas-fired regenerative thermal oxidizer known as CD-06: The three (3) hour average temperature shall be calculated as the

average of the readings (except that the average need only be calculated if readings occur below the specified temperature level).

- (7) The following frequency of data collection is required for the carbon adsorption system known as CAPSB2, and the natural gas-fired regenerative thermal oxidizer known as CD-06: The temperature shall be monitored continuously and the temperature recorded at least every fifteen (15) minutes (minimum of four (4) equally spaced readings per hour).
- (8) The following excursion requirement is required for the carbon adsorption system known as CAPSB2 and natural gas-fired regenerative thermal oxidizer known as CD-06: After becoming aware that there has been a temperature change that does not satisfy the specified value, an investigation will begin as soon as practical. The three (3) hour average temperature will be calculated when the temperature recorder indicates readings below the specified temperature. An investigation involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there has been an excursion, it shall be recorded and, when necessary, corrective action shall begin as soon as practical.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-29]

D.2.16 Record Keeping Requirements [326 IAC 8-1-2] [326 IAC 12] [40 CFR 60.395]

- (a) To document compliance with Conditions D.2.1, D.2.2, and D.2.13, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in D.2.1 and D.2.2.
 - (1) The amount and VOC content of each coating material and solvent used.
 - (a) Records shall include, but not limited to purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents;
 - (2) A log of the dates of use; and
 - (3) The total VOC usage daily and monthly.
 - (4) Toyota shall record the daily volume weighted average of the total mass of VOC per volume of coating solids (lb/gal of coating solids) used for the Primer operations including the Primer Surfacer/Guidecoat operation.
 - (5) The continuous temperature records at least every 15 minutes (minimum of four equally-spaced readings per hour) for the thermal oxidizer and the average temperature used to demonstrate compliance during the most recent compliant stack test.
 - (6) Daily records of the duct pressure or fan amperage.
- (b) To document compliance with Conditions D.2.6, D.2.10, D.2.12(b) and D.2.14, the Permittee shall maintain records in accordance with (1) through (4) below:

- (1) Where compliance is achieved through the use of incineration, Toyota shall include the following additional data in the control device every subsequent performance tests at which destruction efficiency is determined: the combustion temperature, the total mass of VOC per volume of applied coating solids before and after the incinerator, capture efficiency, the destruction efficiency of the incinerator used to attain compliance with the applicable emission limit, and a description of the method used to establish the fraction of VOC captured and sent to the control device.
 - (2) Toyota shall identify and every calendar quarter of each instance in which the volume-weighted average of the total mass of VOC's emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under § 60.392.
 - (3) Where compliance with § 60.392 is achieved through the use of incineration, Toyota shall continuously record the incinerator combustion temperature during coating operations for thermal incineration.
 - (4) Toyota shall record all period (during actual coating operations) in excess of 3 hours during which average temperature in the Thermal Oxidizer used to control VOC emission from the Primer Surfacer/Guidecoat remains more than 28 °C (50 °F) below the temperature established to meet the limit.
- (c) To document compliance with D.2.13, the Permittee shall maintain a log of weekly overspray observation, daily and monthly inspections of the wet scrubber and dry filters, and those additional inspections prescribed by the Preventive Maintenance Plan.

D.2.17 Reporting Requirements [326 IAC 2-2] [326 IAC 12-1-1 and 40 CFR Part 60]

- (a) Pursuant to 326 IAC 2-2, a summary of the information to document compliance with Condition D.2.1 and D.2.6 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit using the reporting forms located at the end of this permit or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (b) Pursuant to 326 IAC 12-1-1 and 40 CFR Part 60, Subpart MM - Automobile and Light Duty Truck, NSPS, a summary of the following information to document compliance with D.2.6 shall be submitted to the address listed in Section C - General Reporting Requirements, within thirty (30) days after the end of the quarter being reported:
 - (1) Toyota shall identify, record, and submit a written report to the IDEM, OAQ every calendar quarter of each instance in which the volume-weighted average of the total mass of VOC's emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under § 60.392. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to the IDEM, OAQ semiannually.
 - (2) Where compliance is achieved through the use of a capture system and control device, the volume-weighted average after the control device should be reported.

- (3) Toyota shall include in the quarterly reports, instances when the thermal oxidizer temperature drops as defined under D.2.12. If no such periods occur, the owner or operator shall state this in the report.

- (4) Toyota shall submit a written report at the frequency specified in § 60.7(c) and as defined below.
 - (A) For thermal incinerators, every three-hour period shall be reported during which the average temperature measured is more than 28 °C less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined as specified under § 60.393.
 - (B) If no such periods occur, Toyota shall submit a negative report.

SECTION D.3

FACILITY OPERATION CONDITIONS

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

Plant #2 East Plant

(c) Topcoat System

(1) One (1) Topcoat system, known as Topcoat A, installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:

(A) One (1) topcoat oven, known as Topcoat Oven A, with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #3 (CD-07), for VOC control;

(B) One (1) topcoat booth, known as Topcoat Booth A, with one (1) carbon adsorption system, known as CATCCC1, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #3 (CD-07), for VOC control; and

(C) One (1) blackout/cavity wax booth, equipped with a wet scrubber to control PM overspray when using blackout and dry filters to control PM overspray when using wax.

(2) One (1) topcoat system, known as Topcoat B, installed in 2002, located in Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:

(A) One (1) topcoat oven, Topcoat Oven B with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #4 (CD-08), for VOC control; and

(B) One (1) topcoat booth, known as Topcoat Booth B, with one (1) carbon adsorption system, known as CATCCC2, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #4 (CD-08), for VOC control.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

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

D.3.1 Best Available Control Technology for Prevention of Significant Deterioration (PSD) [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration), the Best Available Control Technology (BACT) for the Topcoat operations shall be the following:

- (a) a limit of 5.2 pounds of VOC per gallon of applied coating solids (0.623 kilograms of VOC per liter of applied solids).

This condition shall supersede the limit for the Topcoat in Operating Condition no. 9 of permit CP 051-5391- 00037, issued on August 9, 1996.

- (b) The Thermal Oxidizer #3 shall be operated at all times whenever the process it controls is in operation and shall have the following minimum destruction efficiency:

Facility	% Destruction Efficiency
Topcoat Booths A *	80.75%
Topcoat Ovens A	95%
Topcoat Booths B *	80.75%
Topcoat Ovens B	95%
* Combined system efficiencies of the thermal oxidizer and the carbon adsorber.	

This condition shall supersede the efficiencies for these facilities in Operating Condition No. 3 in permit CP 051-5391- 00037, issued on August 9, 1996.

D.3.2 Volatile Organic Compounds (VOC) [326 IAC 8-1-2]

- (a) Pursuant to 326 IAC 8-2-2, the Permittee shall not allow the discharge into the atmosphere of any volatile organic compound (VOC) in excess of 0.34 kilogram per liter of coating (2.8 pounds per gallon), excluding water delivered to the application from topcoat application, flash-off area, and oven operation.
- (b) Pursuant to 326 IAC 8-1-2(a), the VOC emission limitation as allowed in section (a) of this condition shall be achieved through one (1) or any combination of the following:
 - (1) Carbon adsorption,
 - (2) Thermal Oxidizer,
 - (3) Through equivalent emission limitations based on actual measured transfer efficiency higher than the specified baseline transfer efficiency as follows:

Category	Equivalent Emission Limit (kg of VOC/liter applied solids)	Equivalent Emission Limit (lb of VOC/gal applied solids)

Topcoat	1.83	15.1
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- (c) Compliance with the above VOC limits shall be determined using the procedures found in "Protocol for Determining the Daily Volatile Organic Compound (VOC) Emission Rate of Automobile and Light Duty Truck Topcoat Operations", EPA-450/3-88-018, December 1988. This protocol allows demonstration of the daily volume weighted average from the total monthly topcoat usage, which means that the source can calculate the topcoat emission rate for each day at the end of each month.

This condition shall supersede Operating Condition no. 14 of permit CP 051-5391- 00037, issued on August 9, 1996.

D.3.3 Particulate Matter (PM) [40 CFR 52 Subpart P][326 IAC 6-3-2]

- (a) Pursuant to 40 CFR 52 Subpart P, the allowable particulate matter emissions rate from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour.
- (b) Pursuant to 326 IAC 6-3-2, the two Topcoat surface coating operations at the Plant #2 (East Plant) shall be controlled by a dry filter, waterwash, or an equivalent control device, subject to the following:
- (1) The source shall operate the control device in accordance with manufacturer's specifications.
 - (2) If overspray is visibly detected at the exhaust or accumulates on the ground, the source shall inspect the control device and do either of the following no later than four (4) hours after such observation:
 - (A) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
 - (B) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

If overspray is visibly detected, the source shall maintain a record of the action taken as a result of the inspection, any repairs of the control device or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

Once the Part 70 permit is issued, section (2) of this condition shall not apply.

D.3.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit is required for the Plant #2 (East Plant) two (2) Topcoat Operations known as Unit 17b including the control devices.

D.3.5 General provisions Relating to NSPS [326 IAC 12-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart MM.

D.3.6 New Source Performance Standards for Automobile and light Duty Truck Surface Coating Operations - VOC Limit [326 IAC 12 and 40 CFR Part 60.392]

Pursuant to 40 CFR Part 60.392, Subpart MM, the VOC emissions from the Plant #2 (East Plant) Two (2) Topcoat Systems, known as Emission Unit 17c, shall not exceed 1.47 kilogram of VOC per liter applied coating solids (12.22 pounds of VOC per gallon of applied coating solids).

This condition shall supersede the limit for the Topcoat in Operating Condition no. 11 of permit CP 051-5391- 00037, issued on August 9, 1996.

Compliance Determination Requirements

D.3.7 Particulate Dry Filters, and Wet Scrubbers

The Particulate Dry Filters, and Wet Scrubbers shall be in operation at all times the Topcoat process is in operation.

This condition shall supersede Operating Condition No.19 in permit CP 051-5391- 00037, issued on August 9, 1996, pertaining to the Topcoat Booths.

D.3.8 Thermal Oxidizer

Pursuant to 40 CFR Part 60.394, Toyota shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:

- (a) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox.
- (b) Each temperature measurement device shall have an accuracy of the greater of ± 0.75 percent of the temperature being measured expressed in degrees Celsius or ± 2.5 °C.
- (c) Each temperature measurement device shall be equipped with a recording device so that a permanent record is produced.

This condition shall supersede Operating Condition No.18 in permit CP 051-5391- 00037, issued on August 9, 1996, pertaining to the Topcoat automatic zones only.

D.3.9 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

- (a) Within sixty (60) days after achieving the maximum production rate at which the Topcoat process from the modification will be operated but no later than 180 days following the completion of all proposed modifications to the process, or within 2 ½ years of the issuance date of the permit modification whichever comes first, the Permittee shall perform control efficiency testing utilizing methods as approved by the Commissioner.
- (c) The Permittee shall determine the minimum operating temperature and duct pressure or fan amperage for the thermal oxidizers from the most recent valid stack test that demonstrate compliance with the VOC limits in conditions D.1.1 of Section D.1 and conditions D.3.1 and D.3.2 .

- (d) IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the VOC limit specified in D.1.1 of Section D.1 and conditions D.3.1 and D.3.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.
- (d) This test shall be repeated at least once every two and half (2.5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing of the Part 70 Permit.

D.3.10 Testing Requirements [326 IAC 12-1-2 [40CFR Part 60.393, Subpart MM)

- (a) Pursuant to Part 60.393, Toyota shall conduct an initial performance test, after the modification has been constructed in accordance with § 60.8(a) within 60 days after achieving maximum production rate at which the Topcoat process from the modification will be operated but no later than 180 days after initial startup of this modification. **Note: Each monthly calculation is a performance test for the purpose of this subpart.**
- (b) Section 60.8(d) and (f) do not apply to the performance procedures required by this section.
- (c) Toyota shall use the following procedures for determining the monthly volume weighted average mass of VOC emitted per volume of applied coating solids:
 - (1) Toyota shall use the following procedures for each affected facility which does not use a capture system and a control device to comply with the applicable emission limit specified under § 60.392:
 - (A) Calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. Toyota shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by Method 24. The IDEM, OAQ may require Toyota who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by Method 24 or an equivalent or alternative method. Toyota shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. The volume weighted average of the total mass of VOC per volume of coating solids used each calendar month will be determined by the following procedures:
 - (i) Calculate the mass of VOC used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used and “m” is the total number of VOC solvents used:

$$M_o + M_d = \sum_{i=1}^n L_{ci} D_{ci} W_{oi} + \sum_{j=1}^m L_{dj} D_{dj}$$

[$\sum_{j=1}^m L_{dj} D_{dj}$ will be zero if no VOC solvent is added to the coatings, as received].

Where:

- M_o = total mass of VOC in coatings as received (kilograms, kg)
- M_d = total mass of VOC in dilution solvent, kg
- L_{ci} = Volume of each coating (i) consumed, as received (liters)
- D_{ci} = Density of the coating (i) as received (kg/l)
- L_{dj} = Volume of each type VOC dilution solvent (j) added to the coatings, as received (liters)

(ii) Calculate the total volume of coating solids used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used:

$$L_s = \sum_{i=1}^n L_{ci} V_{si}$$

Where:

- L_s = Volume of solids in coatings consumed (liters)
- V_{si} = Proportion of solids by volume in each coating (i) as received

(iii) Select the appropriate transfer efficiency (T) from the following tables for each surface coating operation:

Application method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.39
Air Atomized Spray (solvent-borne coating)	0.50
Manual Electrostatic Spray	0.75
Automatic Electrostatic Spray	0.95
Electrodeposition	1.00

The values in the table above represent an overall system efficiency which includes a total capture of purge. If a spray system uses line purging after each vehicle and does not collect any of the purge material, the following table shall be used:

Application method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.30
Air Atomized Spray (solvent-borne coating)	0.40
Manual Electrostatic Spray	0.62
Automatic Electrostatic Spray	0.75

If Toyota can justify to the IDEM, OAQ's satisfaction that other values for transfer efficiencies are appropriate, the IDEM, OAQ will approve their use on a case-by-case basis. (1) When more than one application method (l) is used on an individual surface coating operation, Toyota shall perform an analysis to determine an average transfer efficiency by the following equation where "n" is the total number of coatings used and "p" is the total number of application methods:

$$T = \frac{\sum_{i=1}^n T_i V_{si} L_{cili}}{\sum_{i=1}^p L_s}$$

- (iv) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s T}$$

- (2) Toyota shall use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with the applicable emission limit specified under § 60.392:

- (A) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (B) Calculate the volume weighted average mass of VOC per volume of applied solids emitted after the control device, by the following equation:

$$N=G[1-FE]$$

Where:

- N = Volume weighted average mass of VOC per volume of applied coating solids after the control device
- G = Volume weighted average mass of VOC per volume of applied solids (kg/l)
- F = Fraction of total VOC which is emitted by an affected facility that enters the control device
- E = VOC destruction efficiency of the control device

- (1) Determine the fraction of total VOC which is emitted by an affected facility that enters the control device by using the following equation where "n" is the total number of stacks entering the control device and "p" is the total number of stacks not connected to the control device:

$$\sum_{i=1}^n Q_{bi} C_{bi}$$

$$F = \frac{\sum_{i=1}^n Q_{bi} C_{bi} + \sum_{k=1}^p Q_{fk} C_{fk}}{\sum_{i=1}^n Q_{bi} C_{bi} + \sum_{k=1}^p Q_{fk} C_{fk}}$$

Where:

F = fraction of total VOC which is emitted by an affected facility that enters the control device

Q_{fk} = volumetric flow rate of the effluent gas Flowing through exhaust stack (k) not entering the control device (dry standard cubic meters per hour)

C_{fk} = concentration of VOC (as carbon) in the effluent gas flowing through exhaust stack (k) not entering the control device (ppm by volume)

If Toyota can justify to the IDEM, OAQ satisfaction that another method will give comparable results, the IDEM, OAQ will approve its use on a case-by-case basis.

(A) In subsequent months, Toyota shall use the most recently determined capture fraction for the performance test.

(2) Determines the destruction efficiency of the control device using values of the volumetric flow rate of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation where “n” is the total number of stacks entering the control device and “m” is the total number of stacks leaving the control device:

$$E = \frac{\sum_{i=1}^n Q_{bi} C_{bi} - \sum_{j=1}^m Q_{aj} C_{aj}}{\sum_{i=1}^n Q_{bi} C_{bi}}$$

Where:

E = VOC destruction or removal efficiency of the control device,

Q_{aj} = volumetric flow rate of the effluent gas flowing through stack (j) leaving the control device (dry standard cubic meters per hour),

Q_{bi} = volumetric flow rate of the effluent gas flowing through stack (i) entering the control device (dry standard cubic meters per hour),

- (A) In subsequent months, Toyota shall use the most recently determined VOC destruction efficiency for the performance test.
- (3) If an emission control device controls the emissions from more than one affected facility, Toyota shall measure the VOC concentration (C_{bi}) in the effluent gas entering the control device (in parts per million by volume) and the volumetric flow rate (Q_{bi}) of the effluent gas (in dry standard cubic meters per hour) entering the device through each stack. The destruction or removal efficiency determined using these data shall be applied to each affected facility served by the control device.
- (C) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance.
- (D) Toyota shall use the following procedures for each affected facility which uses a capture system and a control device that recovers the VOC (e.g., carbon adsorber) to comply with the applicable emission limit specified under § 60.392.
- (1) Calculate the mass of VOC (M_o+M_d) used during each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (2) Calculate the total volume of coating solids (L_s) used in each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (3) Calculate the mass of VOC recovered (M_r) each calendar month for each affected facility by the following equation: $M_r=L_r D_r$
- (4) Calculate the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device during a calendar month by the following equation:

$$N = \frac{M_o + M_d - M_r}{L_s T}$$

- (A) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance.

D.3.11 Volatile Organic Compounds (VOC)

Compliance with the VOC content and usage limitations contained in Condition D.3.1, D.3.2 and D.3.6 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) using formulation data supplied by the coating manufacturer. IDEM, OAQ, reserves the authority to determine

compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

This Condition shall supersede Operating Condition No. 29 in permit CP 051-5391-00037, issued on August 9, 1996.

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

D.3.12 Monitoring [326 IAC 2-2] [40 CFR Part 60.394]

Pursuant to 326 IAC 2-2, Prevention of Significant Deterioration (PSD) requirements; and 40 CFR Part 60.394;

- (a) the thermal oxidizer shall maintain at or above the minimum operating temperature of 1350 °F until a minimum operating temperature has been established during the most recent compliance stack test to achieve compliance with conditions D.3.1, D.3.2, and D.1.2 of Section D.1.
- (b) a continuous monitoring system shall be calibrated, maintained, and operated on the Thermal Oxidizer to continuously record combustion temperature of any effluent gas incinerated to achieve compliance with Conditions D.3.1, D.3.2, D.3.6, and Condition D.1.1 of Section D.1. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports whenever a three (3) hour average temperature of the thermal oxidizer remains more than 28 °C (50 °F) below 1350 °F or below the temperature at which compliance with VOC limits in Conditions D.3.1, D.3.2, D.3.6, and Condition D.1.1 of Section D.1 were demonstrated using the most recent measurement of the Thermal Oxidizer efficiency. A three (3) hour average temperature that remains more than 28 °C (50 °F) below 1350 °F is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports shall be considered a violation of this permit.
- (c) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in D.3.1, D.3.2 and Condition D.1.1 of Section D.1, as approved by IDEM.
- (d) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

D.3.13 Monitoring [326 IAC 2-2]

- (a) Daily visual inspections shall be performed for all surface coating booths used in the vehicle production to verify that for the wet scrubber systems:
 - (1) The continuous underflow water wash is operating properly to provide full coverage of the flood pan, and
 - (2) Weekly observations shall be made of the wet scrubbers to determine whether visible overspray is leaving the booths.
- (b) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be

made of the overspray from the surface coating booth stack while one or more of the booths are in operation. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

- (c) Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable change in overspray emission, or evidence of overspray emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.
- (d) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

D.3.14 Compliance Assurance Monitoring [40 CFR 64]

- (a) A Compliance Assurance Monitoring (CAM) Plan, in accordance with 40 CFR 64, is required for Emission Unit 17c because the potential to emit VOC before controls is greater than one hundred (100) tons per year and the source is subject to the limitations contained in this permit. The CAM plan for Emission Unit 17c was submitted on May 31, 2002 for the use of carbon adsorption units and thermal oxidizers for VOC control for these emission units in order to comply with this permit. The CAM requirements of this section represent the information provided in the CAM plan submitted.
- (b) The Permittee shall monitor the carbon adsorption system known as CATCCC1 and CATCCC2 as follows: During coating operations, a three (3) hour period during which the average desorb temperature measured is lower than the specified indicator value will require a review of the process. This involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there is an excursion, the Permittee must record it and if necessary, initiate corrective action.
- (c) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. The Permittee shall monitor the natural gas-fired regenerative thermal oxidizers known as CD-07 and CD-08, as follows:
 - (1) During coating operations, a three (3) hour period during which the average temperature measured is lower than the specified value by more than 28°C (50°F) will require a review of the process. This involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there is an excursion, the Permittee must record it and if necessary, initiate corrective action.
 - (2) The specified value for the thermal oxidizer is the average temperature during the most recent control device performance test at which the destruction efficiency was determined. Prior to the performance test on the unit the specified value shall be 1350°F. The temperature sensor is to be located in the exhaust stream of the combustion chamber as recommended by the manufacturer or consistent with the configuration utilized to measure the combustion temperature during the most recent control device performance test.

- (3) The indicator ranges for carbon adsorption systems CATCCC1 and CATCCC2 and the regenerative thermal oxidizers known as CD-07 and CD-08, will be established within six (6) months after start-up of the equipment or within six (6) months after the issuance of this permit, whichever comes first.
- (4) The following quality assurance and quality control is required for the carbon adsorption systems known as CATCCC1 and CATCCC2: Accuracy of the thermocouple will be verified by a second, or redundant thermocouple probe inserted at the inlet to the desorption zone. This validation check will be conducted annually. The acceptance criterion is ± 30 °F. Alternatively, the thermocouple can be re-calibrated annually.
- (5) The following quality assurance and quality control is required for the natural gas-fired regenerative thermal oxidizers known as CD-07 and CD-08. The operating temperature measuring device shall be calibrated, maintained and operated according to accepted practice and manufacturer's specifications. The temperature-measuring device shall meet current NSPS, Subpart MM requirements of ± 0.75 percent of the combustion temperature being measured expressed in degrees Celsius or ± 2.5 °C whichever is greater.
- (6) The following data averaging period is required for the carbon adsorption systems known as CATCCC1 and CATCCC2, and the natural gas-fired regenerative thermal oxidizers known as CD-07 and CD-08: The three (3) hour average temperature shall be calculated as the average of the readings (except that the average need only be calculated if readings occur below the specified temperature level).
- (7) The following frequency of data collection is required for the carbon adsorption systems known as CATCCC1 and CATCCC2, and the natural gas-fired regenerative thermal oxidizers known as CD-07 and CD-08: The temperature shall be monitored continuously and the temperature recorded at least every fifteen (15) minutes (minimum of four (4) equally spaced readings per hour).
- (8) The following excursion requirement is required for the carbon adsorption systems known as CATCCC1 and CATCCC2 and natural gas-fired regenerative thermal oxidizers known as CD-07 and CD-08: After becoming aware that there has been a temperature change that does not satisfy the specified value, an investigation will begin as soon as practical. The three (3) hour average temperature will be calculated when the temperature recorder indicates readings below the specified temperature. An investigation involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there has been an excursion, it shall be recorded and, when necessary, corrective action shall begin as soon as practical.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-29]

D.3.15 Record Keeping Requirements [326 IAC 8-1-2] [326 IAC 12] [40 CFR 60.395]

- (a) To document compliance with Conditions D.3.1, D.3.2, and D.3.12, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Conditions D.3.1, and D.3.2.

- (1) The amount and VOC content of each coating material and solvent used.
 - (a) Records shall include, but not limited to purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents;
 - (2) A log of the dates of use; and
 - (3) The total VOC usage per month.
 - (4) Toyota shall keep records and report of the volume weighted average of the total mass of VOC per volume of applied coating solids (lb/gal applied coating solids) used for each Topcoat operations as determined using the "Protocol for Determining the Daily VOC Emission Rate of Automobile and light-Duty Truck Topcoat Operations".
 - (5) The continuous temperature records at least every 15 minutes (minimum of four equally-spaced readings per hour) for the thermal oxidizer and the average temperature used to demonstrate compliance during the most recent compliant stack test
 - (6) Daily records of the duct pressure or fan amperage.
- (b) To document compliance with Conditions D.3.6, D.3.10, D.3.12 (b), and D.3.14, the Permittee shall maintain records in accordance with (1) through (4) below:
- (1) Toyota shall keep records and report the volume weighted average mass of VOC emitted to the atmosphere per volume of applied coating solids for each Topcoat operations.
 - (A) Where compliance is achieved through the use of incineration, Toyota shall include the following additional data in the control device every subsequent performance tests at which destruction efficiency is determined: the combustion temperature, the total mass of VOC per volume of applied coating solids before and after the incinerator, capture efficiency, the destruction efficiency of the incinerator used to attain compliance with the applicable emission limit, and a description of the method used to establish the fraction of VOC captured and sent to the control device.
 - (2) Toyota shall identify and every calendar quarter of each instance in which the volume-weighted average of the total mass of VOC's emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under § 60.392.
 - (3) Where compliance with § 60.392 is achieved through the use of incineration, Toyota shall continuously record the incinerator

combustion temperature during coating operations for thermal incineration.

- (4) Toyota shall record all period (during actual coating operations) in excess of 3 hours during which average temperature in the Thermal Oxidizer used to control VOC emission from the Topcoat remains more than 28 °C (50 °F) below the temperature established to meet the limit.
- (c) To document compliance with D.3.13, the Permittee shall maintain a log of weekly overspray observation, daily and monthly inspections of the wet scrubber and dry filters, and those additional inspections prescribed by the Preventive Maintenance Plan.

D.3.16 Reporting Requirements [326 IAC 2-2] [326 IAC 12-1-1 and 40 CFR Part 60]

- (a) Pursuant to 326 IAC 2-2, a summary of the information to document compliance with Condition D.3.1 and D.3.6 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit using the reporting forms located at the end of this permit or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (b) Pursuant to 326 IAC 12-1-1 and 40 CFR Part 60, Subpart MM - Automobile and Light Duty Truck, NSPS, a summary of the following information to document compliance with D.3.6 shall be submitted to the address listed in Section C - General Reporting Requirements, within thirty (30) days after the end of the quarter being reported:
 - (1) Toyota shall identify, record, and submit a written report to the IDEM, OAQ every calendar quarter of each instance in which the volume-weighted average of the total mass of VOC's emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under § 60.392. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to the IDEM, OAQ semiannually.
 - (2) Where compliance is achieved through the use of a capture system and control device, the volume-weighted average after the control device should be reported.
 - (3) Toyota shall include in the quarterly reports, instances when the thermal oxidizer temperature drops as defined under D.3.12. If no such periods occur, the owner or operator shall state this in the report.
 - (4) Toyota shall submit a written report at the frequency specified in § 60.7(c) and as defined below.
 - (A) For thermal incinerators, every three-hour period shall be reported during which the average temperature measured is more than 28 °C less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined as specified under § 60.393.

- (B) If no such periods occur, Toyota shall submit a negative report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY**

**PART 70 SOURCE MODIFICATION
CERTIFICATION**

Source Name:	Toyota Motor Manufacturing, Indiana, Inc.
Source Address:	4000 Tulip Tree Drive, Princeton, Indiana 47670
Mailing Address:	P.O. Box 4000 - Mail Drop: PE-I, Princeton, Indiana 47670
Part 70 Permit No.:	T051-11646-00037
Issuance Date:	Pending

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 Affidavit (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 QUALITY
COMPLIANCE DATA SECTION**

**PART 70 SOURCE MODIFICATION
Quarterly Report**

Source Name: Toyota Motor Manufacturing, Indiana, Inc.
Source Address: 4000 Tulip Tree Drive, Princeton, Indiana 47670
Mailing Address: P.O. Box 4000 - Mail Drop: PE-I, Princeton, Indiana 47670
Part 70 Permit No.: T051-11646-00037

Issuance Date: Pending
 Facility: Plant #1 (West Plant) and Plant #2 (East Plant)
 Parameter: VOC Emissions
 Limit: 3,309 tons per twelve (12) consecutive month period, with compliance at the end of each month.

QUARTER: _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + 2 Column
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

Note: This report should include a detailed emission calculations showing the usages, capture and control efficiencies.

9 No deviation occurred in this quarter.
 9 Deviation/s occurred in this quarter.
 Deviation has been reported on: _____
 Submitted by: _____
 Title / Position: _____
 Signature: _____
 Date: _____
 Phone: _____

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION**

**PART 70 SOURCE MODIFICATION
 Quarterly Report**

Source Name: Toyota Motor Manufacturing, Indiana, Inc.
 Source Address: 4000 Tulip Tree Drive, Princeton, Indiana 47670
 Mailing Address: P.O. Box 4000 - Mail Drop: PE-I, Princeton, Indiana 47670
 Part 70 Permit No.: T051-11646-00037
 Issuance Date: Pending
 Facility: Plant #2 (East Plant)

Parameter: VOC Emissions

PSD Limit:

Facility/Operation	VOC Emission Limit (lb of VOC/gallon applied solids (lb/gacs))
Primer Surfacer/Guidecoat	2.37
Topcoat	5.2

Quarter _____ Year _____

Month	Primer Surfacer/Guidecoat (lb/gacs)	Topcoat (lb/gacs)
Month 1		
Month 2		
Month 3		

Note: This report should include a detailed emission calculations showing the usages, capture and control efficiencies.

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.

Deviation has been reported on: _____

Submitted by: _____ Signature: _____

Title/Position: _____ Date: _____

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION**

**PART 70 SOURCE MODIFICATION
 QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Toyota Motor Manufacturing, Indiana, Inc.
 Source Address: 4000 Tulip Tree Drive, Princeton, Indiana 47670
 Mailing Address: P.O. Box 4000 - Mail Drop: PE-I, Princeton, Indiana 47670
 Part 70 Permit No.: T051-11646-00037
 Issuance Date: Pending

Months: _____ to _____ Year: _____

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

9 NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

9 THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

Permit Requirement (specify permit condition #)

Date of Deviation:

Duration of Deviation:

Number of Deviations:

Probable Cause of Deviation:

Response Steps Taken:

Permit Requirement (specify permit condition #)

Date of Deviation:

Duration of Deviation:

Number of Deviations:

Probable Cause of Deviation:

Response Steps Taken:

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

Mail to: Permit Administration & Development Section
 Office Of Air Quality
 100 North Senate Avenue
 P. O. Box 6015

Indianapolis, Indiana 46206-6015
 Toyota Motor Manufacturing, Indiana, Inc.
 P.O. Box 4000 - Mail Drop: PE-I
 Princeton, Indiana 47670

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
 (Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
 (Title) (Company Name)

3. By virtue of my position with _____, I have personal
 (Company Name)

knowledge of the representations contained in this affidavit and am authorized to make

these representations on behalf of _____.
 (Company Name)

4. I hereby certify that Toyota Motor Manufacturing, Indiana, Inc. , 4000 Tulip Tree Drive, Princeton, Indiana 47670, has constructed the modification of Plant #2 (East Plant) PVC Underbody, Primer Surfacer/Guidecoat, and Topcoat booths A and B to add additional robots and to lengthen Primer Surfacer and Topcoat ovens A and B. This modification will allow the entire source to manufacture from 360,000 vehicles per year to 450,000 vehicles

PRIMER SURFACER/GUIDECOAT SYSTEM

(1) One (1) primer surfacer/guidecoat system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17b, equipped with air atomized, electrostatic bells, and high volume low pressure (HVLP) spray guns, wet scrubbers to control PM overspray, and consists of the following:

- (A) One (1) sealer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
- (B) One (1) primer surfacer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
- (C) One (1) primer surfacer coat booth, with one (1) carbon adsorption system, known as CAPSB2, and one (1) regenerative thermal oxidizer known as Booth Thermal Oxidizer #1 (CD-06), for VOC control;
- (D) One (1) PVC undercoat booth, equipped with dry filters to control PM overspray; and

- (E) One (1) anti-chip booth, equipped with dry filters to control PM overspray.

TOPCOAT SYSTEM

- (1) One (1) topcoat system, known as Topcoat A, installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, known as Topcoat Oven A, with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #3 (CD-07), for VOC control;
 - (B) One (1) topcoat booth, known as Topcoat Booth A, with one (1) carbon adsorption system, known as CATCCC1, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #3 (CD-07), for VOC control; and
 - (C) One (1) blackout/cavity wax booth, equipped with a wet scrubber to control PM overspray when using blackout and dry filters to control PM overspray when using wax.
- (2) One (1) topcoat system, known as Topcoat B, installed in 2002, located in Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, Topcoat Oven B with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #4 (CD-08), for VOC control; and
 - (B) One (1) topcoat booth, known as Topcoat Booth B, with one (1) carbon adsorption system, known as CATCCC2, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #4 (CD-08), for VOC control, in conformity with the requirements and intent of the construction permit

application received by the Office of Air Management on November 18, 2002 and as permitted pursuant to **PSD/Source Modification No. 051-16470-00037** issued on _____

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of
Indiana on this _____ day of _____, 20 _____ .

My Commission expires: _____

Signature

Name (typed or printed)

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document for a PSD/Significant Source Modification to a Part 70 Source

Source Name: Toyota Motor Manufacturing, Indiana, Inc.
 Source Location: 4000 Tulip Tree Drive, Princeton, Indiana 47670
 County: Gibson
 SIC Code: 3711
 Operation Permit No.: T051-11646-00037 (Pending)
 PSD/Significant Source Modification: 051-16470
 Permit Reviewer: Aida De Guzman

On May 6, 2003, the Office of Air Quality (OAQ) had a notice published in the Princeton Daily Clarion, Princeton, Indiana, stating that Toyota Motor Manufacturing, Indiana, Inc. had applied for a source modification to Plant #2 (East Plant) Primer Surfacer/Guidecoat system and Topcoat system. The notice also stated that OAQ proposed to issue a permit for this operation 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.

EPA made the following comments via e-mail on May 21, 2003 (changes are **bolded** and deletions are ~~struck-through~~ for emphasis):

- Comment 1: Condition 7 and 12 of the August 9, 1996 permit contains requirements for the sealer and adhesive applications and miscellaneous cleaning and purging operations, why are these conditions excluded from the current PSD permit (i.e. D.1)?
- Response 1: The sealer, adhesive application and miscellaneous cleaning and purging operations are not being physically modified and not are affected by the modification. They were just simply identified as part of the entire source. Existing conditions in CP 051-5391-00037 for these operations will remain.
- Comment 2: Condition A.2 and Section D.1 lists a maximum production of 450,000 vehicles per year but no reporting requirement appears to be required for this limit. Please identify the mechanism by which this limit will be monitored.
- Response 2: The 450,000 vehicle per year is not a limit, it is just a descriptive information and does not constitute enforceable conditions as noted in Section D.1 Facility Description's table.
- Comment 3: Condition A.2 - The first paragraph states that this modification will allow "the entire source to manufacture from 360,000 to 450,000 vehicles per year." Is this a range of possible volume or a net increase, please clarify.
- Response 3: The source will increase the production by 90,000 vehicles per year. To avoid misinterpretation of the scope of the project, Sections A.2 and D.1, was rewritten as follows:

~~This stationary source is approved to construct and operate the modification of Plant #2 (East Plant) PVC Undercoat, Primer Surfacer/Guidecoat, and Topcoat booths A and B to~~

~~add additional robots and to lengthen Primer Surfacer and Topcoat ovens A and B. This modification will allow the entire source to manufacture from 360,000 vehicles per year to 450,000 vehicles per year. No physical modification nor increase in production will be made to Plant #1 (West Plant). Plant #2 (East Plant) will increase production from 180,000 vehicles per year to 270,000 vehicles per year, which consists of the following emission units:~~

Plant #1 (West Plant) and plant #2 (East Plant) automobile and/or light duty truck assembly operation. Plant #1 started production in 1998. Plant #2 started production in 2002. Once the modification to the primer Surfacer and Topcoat Systems are completed the entire source will have a capacity to produce 450,000 vehicles per year. The overall source consists of the following emission units:

Comment 4: Conditions D.2.3 (b) and D.3.3 (b) - A comma should be added after the word "device" in accordance with 326 IAC 6-3-2, otherwise the meaning of the condition is altered.

Response 4: A comma was placed after the word device as follows:

D.2.3 Particulate Matter (PM) [40 CFR 52 Subpart P][326 IAC 6-3-2]

- (a) Pursuant to 40 CFR 52 Subpart P, the allowable particulate matter emissions rate from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour.
- (b) Pursuant to 326 IAC 6-3-2, the Prime and Primer Surfacer/Guidecoat surface coating operations at the Plant #2 (East Plant) shall be controlled by a dry filter, waterwash, or an equivalent control device, subject to the following:

Comment 5: Conditions D.2.3 and D.3.3 - Please explain the statement contained in the condition that states "once the Part 70 permit is issued, section (2) of this section shall not apply".

Response 5: Pursuant to 326 IAC 6-3-2, sources that operate according to a valid permit pursuant to any of:

- (A) 326 IAC 2-7;
- (B) 326 IAC 2-8; or
- (C) 326 IAC 2-9;

are exempt from subdivision (2) of 326 IAC 6-3-2. Since Toyota Part 70 permit has not been issued it will be subject to the requirements of subdivision (2).

Comment 6: Conditions D.2.6 and D.3.6 - Provide a more specific citation within 40 CFR Subpart MM.

Response 6: The citation for the VOC limit was changed to a more specific citation as follows:

D.2.6 New Source Performance Standards for Automobile and light Duty Truck Surface Coating Operations - **VOC Limit** [326 IAC 12 and 40 CFR Part 60.392]

Pursuant to 40 CFR Part 60.392, Subpart MM, the VOC emissions from the Plant #2 (East Plant) Primer Surfacer/Guidecoat System, known as Emission Unit 17b, shall not exceed 1.40 kilogram of VOC per liter applied coating solids (11.64 pounds of VOC per gallon of applied coating solids).

This condition shall supersede the limit for the Primer Surfacer/Guidecoat in Operating Condition No.11 in permit CP 051-5391- 00037, issued on August 9, 1996.

D.3.6 New Source Performance Standards for Automobile and light Duty Truck Surface Coating Operations - **VOC Limit** [326 IAC 12 and 40 CFR Part 60.392]

Pursuant to 40 CFR Part 60.392, Subpart MM, the VOC emissions from the Plant #2 (East Plant) Two (2) Topcoat Systems, known as Emission Unit 17c, shall not exceed 1.47 kilogram of VOC per liter applied coating solids (12.22 pounds of VOC per gallon of applied coating solids).

This condition shall supersede the limit for the Topcoat in Operating Condition no. 11 of permit CP 051-5391- 00037, issued on August 9, 1996.

Comment 7: Conditions D.2.8 (b) and D.3.8 (b) - Please explain why the percent accuracy of the temperature measurement device (5 percent) does not match 40 CFR 60.394 (b).

Response 7: The temperature as written is a typographical error. Condition D.2.8 and D.3.8 were changed as follows:

D.2.8 Thermal Oxidizer

Pursuant to 40 CFR Part 60.394, Toyota shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:

- (a) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox.
- (b) Each temperature measurement device shall have an accuracy of the greater of ± 5 **0.75** percent of the temperature being measured expressed in degrees Celsius or ± 2.5 °C.
- (c) no change

D.3.8 Thermal Oxidizer

Pursuant to 40 CFR Part 60.394, Toyota shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:

- (a) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox.
- (b) Each temperature measurement device shall have an accuracy of the greater of ± 5 **0.75** percent of the temperature being measured expressed in degrees Celsius or ± 2.5 °C.
- (c) no change

Comment 8: Permit Sections D.2 and D.3 both contain a BACT and a NSPS limit for VOCs. Where in the permit or TSD is the connection between these two limits made?

Response 8: If two applicable rules limit the same parameter (as in this case the VOC limit in the PSD BACT and NSPS), the permit must contain both applicable rules because 326 IAC 2-7-5, which Toyota is subject to, states that all applicable emission limitations and standards must be listed within the permit. The source shall comply with the more stringent requirement as the BACT VOC limit in order to satisfy or meet the NSPS VOC limit.

Comment 9: Conditions D.2.10 (c)(1)(A)(i) and D.3.10 (c)(1)(A)(i) - Formulas jumbled, please repair.

Response 9: The formulas in Conditions D.2.10 (c)(1)(A)(i) and D.3.10 (c)(1)(A)(i) were reviewed and found nothing wrong with them. The electronic version might have changed the format that made the numbers jumbled.

Comment 10: Conditions D.2.10 (c)(1)(A)(ii) and D.3.10 (c)(1)(A)(ii) - Case on Lci incorrect.

Response 10: Conditions D.2.10 (c)(1)(A)(ii) and D.3.10 (c)(1)(A)(ii) case on Lci was corrected in the permit as follows:

$$L_s = \sum_{i=1}^n L_{ci} V_{si}$$

Comment 11: Conditions D.2.10 (c)(1)(A)(iii) and D.3.10 (c)(1)(A)(iii) - Missing formula at the end of the condition.

Response 11: The following formula was added in Conditions D.2.10 (c)(1)(A)(iii) and D.3.10 (c)(1)(A)(iii):

$$T = \frac{\sum_{i=1}^n T_1 V_{si} L_{cil}}{\sum_{l=1}^p L_s}$$

Comment 12: Conditions D.2.10 (c)(1)(A)(iv) and D.3.10 (c)(1)(A)(iv) - Formula missing (+) between Mo and Md.

Response 12: Conditions D.2.10 (c)(1)(A)(iv) and D.3.10 (c)(1)(A)(iv) was corrected in the permit as follows:

$$G = \frac{M_o + M_d}{L_s T}$$

Comment 13: Conditions D.2.10 (c)(2)(B)(1)&(2) and D.3.10 (c)(2)(B)(1)&(2) - Please repair formula.

Response 13: The formulas in the above conditions were adjusted, below are the corrected formulas:

$$(1) \quad F = \frac{\sum_{i=1}^n Q_{bi} C_{bi}}{\sum_{l=1}^n Q_{bi} C_{bi} + \sum_{k=1}^p Q_{fk} C_{fk}}$$

$$E = \frac{\sum_{i=1}^n Q_{bi} C_{bi} - \sum_{j=1}^m Q_{aj} C_{aj}}{\sum_{i=1}^n Q_{bi} C_{bi}}$$

Comment 14. Condition D.2.14 (c)(5) - Temperature requirements listed does not match the values within 40 CFR 60.394(b), please explain.

Response 14: The temperature as written in the draft permit is a typographical error, the temperature was corrected as follows:

- (5) The following quality assurance and quality control is required for the natural gas-fired regenerative thermal oxidizer known as CD-06. The operating temperature measuring device shall be calibrated, maintained and operated according to accepted practice and manufacturer's specifications. The temperature-measuring device shall meet current NSPS, Subpart MM requirements of ± 4 **0.75** percent of the combustion temperature being measured expressed in degrees Fahrenheit or Celsius or ± 0.5 -°F-**2.5 °C** whichever is greater.

Comment 15: Condition D.2.15 and D.3.15 - The citation listed, 40 CFR 60.465, does not appear to be applicable, please review and revise accordingly. In addition, it is suggested that more specific citations be referenced throughout the condition since the regulations in many areas are quoted verbatim.

Response 15: The citation listed is a typographical error, please see the following corrected conditions:

D.2.15 Record Keeping Requirements [326 IAC 8-1-2] [326 IAC 12] [40 CFR 60.465 395]
 (a) To document compliance with Conditions D.2.1, D.2.2, and D.2.12, the Permittee.....

D.3.15 Record Keeping Requirements [326 IAC 8-1-2] [326 IAC 12] [40 CFR 60.465 395]
 (a) To document compliance with Conditions D.3.1, D.3.2, and D.3.12, the Permittee

Toyota Motor Manufacturing, Indiana, Inc. made the following comments on June 4, 2003 (changes are **bolded** and deletions are ~~struck through~~ for emphasis):

Comment 1: Section A.2 Emission Units and Pollution Control Equipment Summary - Toyota would like to request that this section be modified to be consistent with the descriptions contained in specific D sections of the permit. Toyota believes that the D section descriptions provide for a clearer and better organized set of descriptions.

Response 1: Section A.2 Emission Units and Pollution Control Equipment Summary was modified and made consistent with the facility descriptions contain in Section Ds as follows. See Response 3 to EPA comment for related issue:

~~This stationary source is approved to construct and operate the modification of Plant #2 (East Plant) PVC Undercoat, Primer Surfacer/Guidecoat, and Topcoat booths A and B to add additional robots and to lengthen Primer Surfacer and Topcoat ovens A and B. This~~

modification will allow the entire source to manufacture from 360,000 vehicles per year to 450,000 vehicles per year. No physical modification nor increase in production will be made to Plant #1 (West Plant). Plant #2 (East Plant) will increase production from 180,000 vehicles per year to 270,000 vehicles per year, which consists of the following emission units: **This stationary source is an automobile and/or light duty truck assembly plant.**

Entire Source

(a) **Plant #1 (West Plant) and plant #2 (East Plant) automobile and/or light duty truck assembly operation. Plant #1 started production in 1998. Plant #2 started production in 2002. Once the modification to the primer Surfacer and Topcoat Systems are completed the entire source will have a capacity to produce 450,000 vehicles per year. The overall source consists of the following emission units:**

- (1) **Plant-Wide Combustion**
- (2) **Primary Surface Coating Operations - Electrodeposition (ED) Systems**
 - **Primer Surfacer Systems**
 - **Topcoat Systems**
- (3) **Plastic Coating Operations**
- (4) **Miscellaneous Coating Operations**
- (5) **Repair Operations**
- (6) **Plant-wide Miscellaneous Operations**
- (7) **Storage Tanks and Gasoline Dispensing, and**
- (8) **Insignificant Activities**

~~(a) **PRIMARY SURFACE COATING OPERATIONS**~~

~~(1) One (1) electrodeposition (ED) system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17a, with dipping as the application method and consists of the following:~~

~~(A) One (1) ED tank; and~~

~~(B) One (1) ED oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control.~~

Plant #2 (East Plant)

(b) **PRIMER SURFACER/GUIDECOAT SYSTEM**

(1) One (1) primer surfacer/guidecoat system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17b, equipped with air atomized, electrostatic bells, and high volume low pressure (HVLP) spray guns, wet scrubbers to control PM overspray, and consists of the following:

(A) One (1) sealer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;

- (B) One (1) primer surfacer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (C) One (1) primer surfacer coat booth, with one (1) carbon adsorption system, known as CAPSB2, and one (1) regenerative thermal oxidizer known as Booth Thermal Oxidizer #1 (CD-06), for VOC control;
 - (D) One (1) PVC undercoat booth, equipped with dry filters to control PM overspray; and
 - (E) One (1) anti-chip booth, equipped with dry filters to control PM overspray.
- (c) **TOPCOAT SYSTEM**
- (1) One (1) topcoat system, known as Topcoat A, installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, known as Topcoat Oven A, with the on (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #3 (CD-07), for VOC control;
 - (B) One (1) topcoat booth, known as Topcoat Booth A, with one (1) carbon adsorption system, known as CATCCC1, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #3 (CD-07), for VOC control; and
 - (C) One (1) blackout/cavity wax booth, equipped with a wet scrubber to control PM overspray when using blackout and dry filters to control PM overspray when using wax.
 - (2) One (1) topcoat system, known as Topcoat B, installed in 2002, located in Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, Topcoat Oven B with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #4 (CD-08), for VOC control; and
 - (B) One (1) topcoat booth, known as Topcoat Booth B, with one (1) carbon adsorption system, known as CATCCC2, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #4 (CD-08), for VOC control.

~~(d) **PLASTIC COATING OPERATIONS**~~

- ~~(1) One (1) interior parts (I/P) painting plastic bumper system, installed in 2002, located in the Plastic Painting Operation, known as Emission Unit 18, equipped with one (1) interior parts (I/P) spray booth, one (1) interior parts (I/P) oven, high volume low pressure (HVLP) spray guns and dry filters to control PM overspray.~~
- ~~(2) One (1) plastic slushmolding, and monofoaming, installed in 2002, known as Emission Unit 19. Headliner process to be installed in Emission Unit 19.~~
- ~~(3) Two (2) primer, topcoat, and clearcoat systems, known as A and B, installed in 2002, located in the Plastic Painting Operation of Bumper and Exterior Parts, known as Emission Unit 24, equipped with high volume low pressure (HVLP) and electrostatic spray guns, wet scrubbers to control PM overspray and consists of the following:
 - ~~(A) Two (2) spray booths, known as Bumper Booth A and B, equipped with one (1) carbon adsorption system, known as CABPTGCC, for bumper primer, topcoat, and clearcoat VOC control, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booths A and B Thermal Oxidizer (CD-09) for VOC control; and~~
 - ~~(B) One (1) bumper oven, known as Bumper Oven A & B, equipped with one (1) natural gas-fired, regenerative thermal oxidizer, known as Bumper A & B Thermal Oxidizer (CD-09), for VOC control.~~~~

~~(e) **MISCELLANEOUS COATING OPERATIONS**~~

- ~~(1) One (1) axle coating unit, installed in 2002, located in Miscellaneous Metal Coating Operations, known as Emission Unit 25a, equipped with brushed applicators.~~
- ~~(2) One (1) small parts ELPO system, installed in 2002, located in Miscellaneous Metal Coating Operations, known as Emission Unit 25b, equipped with one (1) small parts ELPO oven with one (1) natural gas-fired, thermal oxidizer, known as Thermal Oxidizer (CD-11), for VOC control, and dipping as the application method.~~

~~(f) **REPAIR OPERATIONS**~~

- ~~(1) One (1) paint hospital (spot repair), installed in 2002, known as Emission Unit 22, equipped with manual spray applicators and dry filters to control PM overspray.~~

~~(g) **PLANT-WIDE MISCELLANEOUS OPERATIONS**~~

- ~~(1) One (1) plant-wide miscellaneous sealers and adhesives operation, known as Emission Unit 20, constructed in 2002, used plant-wide uncontrolled except at the Sealer Oven located in Emission Unit 17b, equipped with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06) for VOC control.~~

- ~~(2) One (1) plant-wide miscellaneous process cleaning operation, known as Emission Unit 21, constructed in 2002 (includes the use of cleaners and solvents that are insignificant activities):~~
- ~~(h) **GASOLINE DISPENSING**~~
- ~~(1) One (1) gasoline dispensing unit located in the Assembly Final Line, known as Emission Unit 23, constructed in 2002, equipped with one (1) natural gas thermal oxidizer, known as Stage II Vapor Recovery.~~

Comment 2: Condition D.2, Compliance requirements for 326 IAC 8-2-2 - Toyota has several concerns regarding the specific compliance demonstration requirements contained in Sections D.2.2, and D.2.15 regarding compliance requirements associated with the requirements of 326 IAC 8-2-2 for the primer surfacer/guidecoat operations. First, as a general comment, we continue to assert that demonstrations of compliance with the much more stringent requirements of the BACT requirements in Section D.2.1 of the permit and the New Source Performance Standards (NSPS) requirements found in section D.2.6 should be adequate in and of themselves to demonstrate compliance with the less stringent requirements of 326 IAC 8-2-2. We do recognize that the limits contained in these different sections of the permit are based on different units of measurement and different averaging times. However, the degree of variability in the various primer coatings and the level of stringency of the BACT limits are such that compliance should be able to be based solely on the monthly compliance demonstrations with the limit in section D.2.1 of the permit.

Response 2: IDEM, OAQ recognizes that Toyota's BACT limit is more stringent than the limit required under 326 IAC 8-2-2, however, each set of rules must be met based on each individual requirement. In this case, 326 IAC 8-2-2 requires a demonstration of the volume weighted average VOC limit for the Primer Surfacers based on daily VOC usage; and the BACT limits demonstration is based on monthly VOC usage. Any relaxation of the requirements will require a State Implementation Plan (SIP) revision.

Condition D.2.2 will be revised to remove the specific overall control efficiency of 81% and the daily weighted average VOC content of 13.67 pounds per gallon solids for all coating used, as long as Toyota demonstrates through spreadsheet calculation method that it meets the equivalent limit of 2.6 pounds of VOC per gallon of coating solids. The revision is as follows:

D.2.2 Volatile Organic Compounds [326 IAC 8-1-2]

- (a) Pursuant to 326 IAC 8-2-2, the Permittee shall not allow the discharge into the atmosphere of any volatile organic compound (VOC) in excess of 0.23 kilogram per liter of coating (1.9 pounds per gallon), excluding water delivered to the applicator from prime application including electrodeposition (ED), primer surfacer/guidecoat operation, flash-off area, and oven operation.
- (b) **Pursuant to 326 IAC 8-1-2(a) this emission limitation shall be achieved through a combination of carbon adsorption on the primer surfacer coat booth, thermal incineration on the primer surfacer coat booth and the primer surfacer and electrodeposition (ED) ovens, and the use of higher solids (low solvent) coatings.**
- (b c) Pursuant to 326 IAC 8-1-2(b) the prime application including **electrodeposition (ED)** and primer surfacer/guidecoat operation shall be limited to no greater than the equivalent of 2.6 pounds of VOC per gallon of coating solids as allowed in (a) of this condition. This equivalent limit shall be determined using the following equation:

$$E = \frac{L}{1 - L/D}$$

Where: L = Applicable emission limit from this article in pounds of VOC per gallon of coating.

D = Density of VOC in coating in pounds per gallon of VOC.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

- (c) Pursuant to 326 IAC 8-1-2(e) the overall control efficiency of the control system (Carbon Adsorber and Thermal Oxidizer) shall be no less than the equivalent overall efficiency of 80.75% and the daily weighted average VOC content of all the coatings applied shall not exceed 13.50 pounds per gallon solids. 326 IAC 8-1-2(e) required overall efficiency shall be calculated using the following equation:

$$\text{O} = \frac{V - E}{V} \times 100$$

Where:

V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

O = Equivalent overall efficiency of the capture system and control device as a percentage.

This condition shall supersede the limit for the Prime Coat, Flash Off Area and Oven in Operating Condition no. 13 of permit CP 051-5391- 00037, issued on August 9, 1996.

Section (c) above will be added in the Compliance Determination as Condition D.2.7, subsequent conditions will be re-numbered accordingly. The Revision is as follows:

D.2.7 Automobile and Light Duty Truck Coating Operations [326 IAC 8-2-2]

Pursuant to 326 IAC 8-1-2(a)(7), Compliance Methods for 326 IAC 8-2-2 or Condition D.2.2, the Permittee shall determine on a daily volume weighted average all coatings applied at the Plant #2 (East Plant) Primer System, taking into account the VOC content of the coating used on a daily basis and the overall control efficiencies of the capture and control system for the Carbon Adsorption system on the Primer Surfacer Coat Booth, and the Thermal Oxidizer on the Primer Surfacer Coat Booth and the Primer Surfacer and ED Ovens. The following calculation methodology shall be performed for each day of operation in order to demonstrate compliance with the equivalent emission limitation of 2.6 pounds of VOC per gallon of coating solids:

- (1) Calculate the mass of VOC emitted each day for each segment of the affected facility by the following equation where "n" is the total number of coatings used and "m" is the total number of VOC solvents used. A segment is each process in the affected facility subject to a specific control system configuration.

$$D_s = \sum_{i=1}^{n+m} L_{ci} D_{ci} W_{oi} \times [1 - CE]$$

Where:

D_s = total mass of VOCs emitted for a particular day from all coatings plus solvents in each segment of the affected facility, (pounds)

L_{ci} = Volume of each coating or diluent solvent (i) consumed, as received (gallons)

D_{ci} = Density of the coating or diluent solvent (i) as received (pounds/gallon)

W_{ci} = Weight fraction of VOCs in the coating or diluent solvent. In pounds VOC per pound of coating or diluent solvent. For diluent solvents $W_{ci} = 1$.

CE = the overall control efficiency (expressed as a decimal) of the control system for the particular segment of the affected facility. The value for CE shall be based on the most recent compliance test to determine the overall efficiency (capture and control) of the control system for the particular segment of the affected facility. For segments of the affected facility which do not use control devices, CE = zero.

- (1) Calculate the total mass of VOCs emitted for all segments of the affected facility as follows:

$$D_t = \sum D_s$$

Where:

D_t = Total Mass of VOCs emitted from all segments of the affected facility (pounds).

- (2) Calculate the total solids in gallons used each day as follows:

$$L_{ds} = \sum_{i=1}^n L_{ci} V_{si}$$

Where:

L_{ds} = Volume of solids in coatings consumed (gallons)

L_{ci} = Volume of each coating (i) used each day as received (gallons)

V_{si} = Proportion of solids by volume in each coating (i) as received

- (3) Calculate the daily weighted average VOC (DWA) emissions in pounds of VOC per gallons of coating solids as follows:

$$DWA = D_t / L_{ds}$$

The affected facility will be in compliance if the value for DWA is equal to or less than 2.6 pounds of VOC per gallon of coating solids.

Comment 3: Conditions D.1.2, D.2.12, D.2.15, D.2.16, D.3.12, D.3.15 and D.3.16, Compliance Monitoring. The proposed permit contains two separate sets of specifications related to compliance monitoring of the controls systems on the primer and topcoat operations.

We strongly request that only one set of monitoring specifications should be included in the permit, and that should be based on the specific Compliance Assurance Monitoring (CAM) protocols developed for the automotive assembly plant surface coating operations. These protocols are reflected in our CAM plan submittal and have been incorporated into the permit in conditions D.2.14 and D.3.14. In addition, our current PSD requires that all thermal oxidizers be equipped with system interlocks that shut down all related paint equipment if the thermal oxidizers or exhaust fan speed drops below the compliant set points. Toyota requests that fan amperage and duct pressure monitoring be eliminated also because Condition D.2.13 (a) already covers an equivalent type of monitoring. This existing condition requires daily inspection of the downdraft air to assure sufficient air flow for normal booth operation. Therefore, Toyota specifically request that the following conditions of the proposed permit be removed: Conditions D.1.2 (a)(6), D.2.13 (a), D.2.15 (a)(5) & (6), D.2.16 (b)(3), D.3.12 (a), D.3.15 (a)(5) & (6), and D.3.16 (b)(3).

Response 3: The averaging time for the temperature monitoring of the RTO required in Conditions D.1.2(a)(6), D.2.12(a), D.2.15(a)(5), D.3.12(a), and D.3.15 (a)(5) will be all revised to conform with the CAM averaging time as follows:

D.1.2(a)(6) Record Keeping Requirements

(a) (1) through (5) no changes

(6) The continuous temperature records ~~(on an hourly average basis at least every 15 minutes (minimum of four equally-spaced readings per hour))~~ for the thermal oxidizer and the ~~hourly~~ average temperature as determined during the most recent compliant stack test ~~as~~ required in Section D.2. and Section D.3 used to demonstrate compliance with the limit in Condition D.1.1.

D.2.13(a) Monitoring [326 IAC 2-2] [326 IAC 12 and 40 CFR Part 60.394]

~~(a)~~ Pursuant to 326 IAC 2-2, Prevention of Significant Deterioration (PSD) requirements **and 40 CFR Part 60.394;**

(a) the thermal oxidizer shall maintain at or above the minimum operating temperature of 1350 °F until a minimum operating temperature has been established during the most recent compliance stack test to achieve compliance with conditions D.2.1, D.2.2, and D.1.2 of Section D.1.

~~(+ b)~~ a continuous monitoring system shall be calibrated, maintained, and operated on the Thermal Oxidizer to continuously record combustion temperature of any effluent gas incinerated to achieve compliance with Conditions D.2.1, D.2.2, **D. 2.6**, and Condition D.1.1 of Section D.1. ~~The output of this system shall be recorded as an hourly average. For the purpose of measuring the temperature of the Thermal oxidizer continuous shall mean no less than once per minute.~~ From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports whenever **a three (3) hour** average temperature of the thermal oxidizer **remains more than 28 °C (50 °F) below 1350 °F or below the temperature at which compliance with VOC limits in Conditions D.2.1, D.2.2, D. 2.6, and Condition D.1.1 of Section D.1 were demonstrated using the most recent measurement of the Thermal Oxidizer efficiency. . A three (3) hour** average temperature that **remains more than 28 °C (50 °F)** is below 1350 °F is not a deviation from this permit. Failure to take response steps in accordance with

Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports shall be considered a violation of this permit.

- (2c) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in D.2.1, D.2.2 and Condition D.1.1 of Section D.1, as approved by IDEM.
- (3d) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.
- ~~(be) The Permittee shall record all period (during actual coating operations) in excess of 3 hours during which average temperature in the Thermal Oxidizer used to control VOC emission from the Primer Surfacer/Guidecoat remains more than 28 °C (50 °F) below the temperature at which compliance with VOC limit in Condition D.2.6 was demonstrated using the most recent measurement of the Thermal Oxidizer efficiency.~~

D.2.15(a)(5) Record Keeping Requirements [326 IAC 8-1-2] [326 IAC 12] [40 CFR 60.465395]

- (a) (1) through (4) no changes
- (5) The continuous temperature records ~~(on an hourly average basis at least every 15 minutes (minimum of four equally-spaced readings per hour) for the thermal oxidizer and the hourly average temperature used to demonstrate compliance during the most recent compliant stack test.~~

D.3.12(a) Monitoring [326 IAC 2-2] [40 CFR Part 60.394]

- ~~(a) Pursuant to 326 IAC 2-2, Prevention of Significant Deterioration (PSD) requirements; and 40 CFR Part 60.394;~~
- (a) **the thermal oxidizer shall maintain at or above the minimum operating temperature of 1350 °F until a minimum operating temperature has been established during the most recent compliance stack test to achieve compliance with conditions D.3.1, D.3.2, and D.1.2 of Section D.1.**
- (4 b) a continuous monitoring system shall be calibrated, maintained, and operated on the Thermal Oxidizer to continuously record combustion temperature of any effluent gas incinerated to achieve compliance with Conditions D.3.1, D.3.2, **D.3.6**, and Condition D.1.1 of Section D.1. ~~The output of this system shall be recorded as an hourly average. For the purpose of measuring the temperature of the Thermal Oxidizer continuous shall mean no less often than once per minute.~~ From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports whenever **a three (3) hour average temperature of the thermal oxidizer remains more than 28 °C (50 °F) below 1350 °F or below the temperature at which compliance with VOC limits in Conditions D.3.1, D.3.2, D.3.6, and Condition D.1.1 of Section D.1 were demonstrated using the most recent measurement of the Thermal Oxidizer efficiency. A three (3) hour average temperature that remains more than 28 °C (50 °F) is below 1350 °F is not a deviation from this permit.** Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports shall be considered a violation of this permit.

- (2 c) The Permittee shall determine the appropriate duct pressure or fan amperage from the most recent valid stack test that demonstrates compliance with limits in D.3.1, D.3.2 and Condition D.1.1 of Section D.1, as approved by IDEM.
- (3 d) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.
- ~~(b) Pursuant to 40 CFR Part 60.394, Toyota shall record all period (during actual coating operations) in excess of 3 hours during which average temperature in the Thermal Oxidizer used to control VOC emission from the Topcoat operation remains more than 28°C (50 °F) below the temperature at which compliance with VOC limit in Condition D.3.6 was demonstrated using the most recent measurement of the Thermal Oxidizer efficiency.~~

D.3.15(a)(5) Record Keeping Requirements [326 IAC 8-1-2] [326 IAC 12] [40 CFR 60.465395]

- (a) (1) through (4) no changes
- (5) The continuous temperature records ~~(on an hourly average basis at least every 15 minutes (minimum of four equally-spaced readings per hour))~~ for the thermal oxidizer and the hourly average temperature used to demonstrate compliance during the most recent compliant stack test.

Response 3 Continuation: Condition D.2.15(a)(6), the requirements for the daily records of duct pressure or fan amperage will **not** be deleted, since the downdraft air system for PM control does not guarantee that all the air is pulled down, which should then go into the oxidizer. During the compliance stack test it was determined that some of the air was blowing out the ovens. Conditions D.2.13(a)(3), and D.3.13(a)(3) however, will be revised to remove downdraft requirements as follows:

D.2.13 Monitoring

- (a) Daily visual inspections shall be performed for all surface coating booths used in the vehicle production to verify that for the wet scrubber systems:
 - (4) The continuous underflow water wash is operating properly to provide full coverage of the flood pan, **and**
 - ~~(5) the downdraft air system is providing sufficient air flow for normal booth operation, and~~

D.3.13 Monitoring [326 IAC 2-2]

- (a) Daily visual inspections shall be performed for all surface coating booths used in the vehicle production to verify that for the wet scrubber systems:
 - (1) The continuous underflow water wash is operating properly to provide full coverage of the flood pan, **and**
 - ~~(2) The downdraft air system is providing sufficient air flow for normal booth operation, and~~

Response 3: Continuation: The requirements in D.2.16(b)(3) and D.3.16(b)(3) are federal requirements under the NSPS, 40 CFR Part 60, Subpart MM, therefore they cannot be deleted from the permit.

Comment 4: **Conditions C.7, D.2.9 and D.3.9, Performance Testing.** These conditions require that performance tests be conducted within 60 days after achieving maximum production rates, but no later than 180 days after initial startup. We anticipate that many of the changes will actually be phased in over a period of time, and we are concerned that these conditions taken together may require excessive and expensive testing as the various phases are completed. The changes to the booths themselves involve the addition of robotic spray equipment, but do not involve modifications to the ventilation systems or the air flow rates. As such we do not anticipate that there will be significant changes to the efficiencies of the various control systems as the various phases of the modification are completed. We are just now completing the compliance testing required for Plant #2. Given these circumstances we would request that the stack testing requirements for the east plant primer and topcoat systems be modified to require stack testing either within 60 days of achieving maximum production rates, but not later than 180 days following the completion of all proposed modifications to the process, or within 2 ½ years of the issuance date of the permit modification per Condition 2.9(d), whichever occurs first. These requirements would be tracked separately for the primer surfacer/guidecoat operations and the topcoat operations.

Response 4: The following conditions were revised to defer the performance testing requirements as follows:

C.7 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 **following the completion of the proposed modification to the process** ~~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, OAQ.
.....

D.2.9 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]
(a) **Within sixty (60) days after achieving the maximum production rate at which the Primer Surfacer/Guidecoat process from the modification will be operated but no later than 180 days following the completion of all proposed modifications to the process , or within 2 ½ years of the issuance date of the permit modification whichever comes first**, ~~Within sixty (60) days after achieving the maximum production rate at which the Topcoat process from the modification will be operated but no later than 180 days after initial startup of this modification~~ the Permittee shall perform control efficiency testing utilizing methods as approved by the Commissioner.

D.3.9 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]
(a) **Within sixty (60) days after achieving the maximum production rate at which the Topcoat process from the modification will be operated but no later than 180 days following the completion of all proposed modifications to the**

process, or within 2 ½ years of the issuance date of the permit modification whichever comes first. ~~Within sixty (60) days after achieving the maximum production rate at which the Topcoat process from the modification will be operated but no later than 180 days after initial startup of this modification,~~ the Permittee shall perform control efficiency testing utilizing methods as approved by the Commissioner.

Comment 5: Conditions C.9, Compliance Monitoring. Condition C.9 requires that all monitoring and recordkeeping requirements shall be implemented when the operation begins. All of the emission units covered by the D sections of the permit are already in operation, and many of the compliance monitoring and recordkeeping requirements of the permit are new and it will take time for us to install the required equipment, establish standard operational practices or modify existing software for the calculation of compliance information. As such, we request that Condition C.9 be modified to require that all of the compliance monitoring and recordkeeping provisions, not already required by existing permits be implemented within 90 days of issuance of the permit.

Response 5: This requirement was referred to IDEM, Compliance Section, and agreed that the 90 day deferral is reasonable. Therefore, C.9 was revised as follows:

C.9_ Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]
If required by Section D, all monitoring and record keeping requirements shall be implemented ~~when operation begins~~ **within 90 days of issuance of this permit.** The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

Comment 6: Conditions D.2.3 (b)(2) and D.3.3 (b)(2), Particulate Matter. These conditions contain specific actions required to be taken when overspray is visibly detected or accumulates on the ground. The specific rule cited contains an exemption from these requirements at 326 IAC 6-3-2(d)(3) where a source is operating according to a valid permit issued pursuant to 326 IAC 2-7 (Part 70 operating permits). This exemption is based on the premise that sources operating subject to a Part 70 permit would be required to develop a specific compliance monitoring and response plan and that the provisions of the plan would be adequate to address actions taken in response to such conditions. The proposed permit is being issued pursuant to the requirements of 326 IAC 2-7 as a Significant Source Modification, and it contains the requirements for a Compliance Response Plan (Condition C.12). As such, the provisions found in Conditions D.2.3 (b)(2) and D.3.3 (b)(2) should be deleted from the permit based on the specific exemption in 326 IAC 6-3-2(d)(3).

Response 6: Pursuant to 326 IAC 6-3-2, sources that operate according to a valid permit pursuant to any of:

- (A) 326 IAC 2-7;
- (B) 326 IAC 2-8; or
- (C) 326 IAC 2-9;

are exempt from subdivision (2) of 326 IAC 6-3-2. Since Toyota Part 70 permit has not been issued it will be subject to the requirements of subdivision (2). This requirements was not deleted in the permit.

Comment 7: "Affidavit of Construction". We request that only the processes being modified be listed in the "Affidavit of construction". The modified processes are Primer Surfacer/Guidecoat and Topcoat.

Response 7: The Affidavit of Construction was revised as follows:

Mail to: Permit Administration & Development Section
Office Of Air Quality
100 North Senate Avenue
P. O. Box 6015

Indianapolis, Indiana 46206-6015
Toyota Motor Manufacturing, Indiana, Inc.
P.O. Box 4000 - Mail Drop: PE-I
Princeton, Indiana 47670

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of _____ for _____.
(Title) (Company Name)
3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____.
(Company Name)
4. I hereby certify that Toyota Motor Manufacturing, Indiana, Inc. , 4000 Tulip Tree Drive, Princeton, Indiana 47670, has constructed the modification of Plant #2 (East Plant) PVC Underbody, Primer Surfacer/Guidecoat, and Topcoat booths A and B to add additional robots and to lengthen Primer Surfacer and Topcoat ovens A and B. This modification will allow the entire source to manufacture from 360,000 vehicles per year to 450,000 vehicles.

PRIMER SURFACER/GUIDECOAT SYSTEM

- (1) One (1) primer surfacer/guidecoat system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17b, equipped with air atomized, electrostatic bells, and high volume low pressure (HVL) spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) sealer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (B) One (1) primer surfacer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (C) One (1) primer surfacer coat booth, with one (1) carbon adsorption system, known as CAPSB2, and one (1) regenerative thermal oxidizer known as Booth Thermal Oxidizer #1 (CD-06), for VOC control;
 - (D) One (1) PVC undercoat booth, equipped with dry filters to control PM

overspray; and

- (E) One (1) anti-chip booth, equipped with dry filters to control PM overspray.

TOPCOAT SYSTEM

- (1) One (1) topcoat system, known as Topcoat A, installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, known as Topcoat Oven A, with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #3 (CD-07), for VOC control;
 - (B) One (1) topcoat booth, known as Topcoat Booth A, with one (1) carbon adsorption system, known as CATCCC1, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #3 (CD-07), for VOC control; and
 - (C) One (1) blackout/cavity wax booth, equipped with a wet scrubber to control PM overspray when using blackout and dry filters to control PM overspray when using wax.
- (2) One (1) topcoat system, known as Topcoat B, installed in 2002, located in Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, Topcoat Oven B with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #4 (CD-08), for VOC control; and
 - (B) One (1) topcoat booth, known as Topcoat Booth B, with one (1) carbon adsorption system, known as CATCCC2, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #4 (CD-08), for VOC control, in conformity with the requirements and intent of the construction permit application received by the Office of Air Management on November 18, 2002 and as permitted pursuant to **PSD/Source Modification No. 051-16470-00037** issued on _____

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

Indiana Department of Environmental Management Office of Air Quality

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

Source Background and Description

Source Name:	Toyota Motor Manufacturing, Indiana, Inc.
Source Location:	Route 41, Princeton, Indiana 47670
County:	Gibson
SIC Code:	3711
Operation Permit No.:	T051-11646-00037
Operation Permit Issuance Date:	Pending
Significant Source Modification No.:	051-16470
Permit Reviewer:	Aida De Guzman

The Office of Air Quality (OAQ) has reviewed a modification application from Toyota Motor Manufacturing, Indiana, Inc, an automobile and light duty truck assembly plant, relating to the modification of Plant #2 (East Plant) PVC Undercoat, Primer Surfacer/Guidecoat, and Topcoat booths A and B to add additional robots and to lengthen Primer Surfacer and Topcoat ovens A and B. This modification will allow the entire plant to increase manufacturing from 360,000 vehicles per year to 450,000 vehicles per year. No physical modification nor increase in production will be made to Plant #1 (West Plant). Plant #2 (East Plant) will increase production from 180,000 vehicles per year to 270,000 vehicles per year, which consists of the following emission units:

(a) **PRIMARY SURFACE COATING OPERATIONS**

- (1) One (1) electrodeposition (ED) system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17a, with dipping as the application method and consists of the following:
- (A) One (1) ED tank; and
 - (B) One (1) ED oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control.

(b) **PRIMER SURFACER/GUIDECOAT SYSTEM**

- (1) One (1) primer surfacer/guidecoat system, originally installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17b, equipped with air atomized, electrostatic bells, and high volume low pressure (HVLP) spray guns, wet scrubbers to control PM overspray, and consists of the following:
- (A) One (1) sealer oven with one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;
 - (B) One (1) primer surfacer oven with one (1) natural gas-fired,

regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06), for VOC control;

- (C) One (1) primer surfacer coat booth, with one (1) carbon adsorption system, known as CAPSB2, and one (1) regenerative thermal oxidizer known as Booth Thermal Oxidizer #1 (CD-06), for VOC control;
- (D) One (1) PVC undercoat booth, equipped with dry filters to control PM overspray; and
- (E) One (1) anti-chip booth, equipped with dry filters to control PM overspray.

(c) **TOPCOAT SYSTEM**

- (1) One (1) topcoat system, known as Topcoat A, installed in 2002, located in the Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, known as Topcoat Oven A, with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #3 (CD-07), for VOC control;
 - (B) One (1) topcoat booth, known as Topcoat Booth A, with one (1) carbon adsorption system, known as CATCCC1, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #3 (CD-07), for VOC control; and
 - (C) One (1) blackout/cavity wax booth, equipped with a wet scrubber to control PM overspray when using blackout and dry filters to control PM overspray when using wax.
- (2) One (1) topcoat system, known as Topcoat B, installed in 2002, located in Primary Surface Coating Operations, known as Emission Unit 17c, equipped with air atomized, electrostatic bells, and electrostatic spray guns, wet scrubbers to control PM overspray, and consists of the following:
 - (A) One (1) topcoat oven, Topcoat Oven B with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #4 (CD-08), for VOC control; and
 - (B) One (1) topcoat booth, known as Topcoat Booth B, with one (1) carbon adsorption system, known as CATCCC2, for VOC control of clearcoats, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booth Thermal Oxidizer #4 (CD-08), for VOC control.

(d) **PLASTIC COATING OPERATIONS**

- (1) One (1) interior parts (I/P) painting plastic bumper system, installed in 2002, located in the Plastic Painting Operation, known as Emission Unit 18, equipped with one (1) interior parts (I/P) spray booth, one (1) interior parts (I/P) oven, high volume low pressure (HVLP) spray guns and dry filters to control PM overspray.
- (2) One (1) plastic slushmolding, and monofoaming installed in 2002, known as Emission Unit 19. Headliner process to be installed in Emission Unit 19.
- (3) Two (2) primer, topcoat, and clearcoat systems, known as A and B, installed in 2002, located in the Plastic Painting Operation of Bumper and Exterior Parts, known as Emission Unit 24, equipped with high volume low pressure (HVLP) and

electrostatic spray guns, wet scrubbers to control PM overspray and consists of the following:

- (A) Two (2) spray booths, known as Bumper Booth A and B, equipped with one (1) carbon adsorption system, known as CABPTCCC, for bumper primer, topcoat, and clearcoat VOC control, and one (1) natural gas-fired, regenerative thermal oxidizer, known as Booths A and B Thermal Oxidizer (CD-09) for VOC control; and
 - (B) One (1) bumper oven, known as Bumper Oven A & B, equipped with one (1) natural gas-fired, regenerative thermal oxidizer, known as Bumper A & B Thermal Oxidizer (CD-09), for VOC control.
- (e) **MISCELLANEOUS COATING OPERATIONS**
- (1) One (1) axle coating unit, installed in 2002, located in Miscellaneous Metal Coating Operations, known as Emission Unit 25a, equipped with brushed applicators.
 - (2) One (1) small parts ELPO system, installed in 2002, located in Miscellaneous Metal Coating Operations, known as Emission Unit 25b, equipped with one (1) small parts ELPO oven with one (1) natural gas-fired, thermal oxidizer, known as Thermal Oxidizer (CD-11), for VOC control, and dipping as the application method.
- (f) **REPAIR OPERATIONS**
- (1) One (1) paint hospital (spot repair), installed in 2002, known as Emission Unit 22, equipped with manual spray applicators and dry filters to control PM overspray.
- (g) **PLANT-WIDE MISCELLANEOUS OPERATIONS**
- (1) One (1) plant-wide miscellaneous sealers and adhesives operation, known as Emission Unit 20, constructed in 2002, used plant-wide uncontrolled except at the Sealer Oven located in Emission Unit 17b, equipped with the one (1) natural gas-fired, regenerative thermal oxidizer, known as Oven Thermal Oxidizer #1 (CD-06) for VOC control.
 - (2) One (1) plant-wide miscellaneous process cleaning operation, known as Emission Unit 21, constructed in 2002 (includes the use of cleaners and solvents that are insignificant activities).
- (h) **GASOLINE DISPENSING**
- (1) One (1) gasoline dispensing unit located in the Assembly Final Line, known as Emission Unit 23, constructed in 2002, equipped with one (1) natural gas thermal oxidizer, known as Stage II Vapor Recovery.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

History

On November 14, 2002, Toyota Motor Manufacturing, Indiana, Inc. submitted an application to the OAQ requesting to add additional robots in the existing primer surfacer/guidecoat system and topcoat booths A and B of their existing plant. Toyota Motor Manufacturing, Indiana, Inc. Part 70 permit is still pending for issuance. Plant #2 (East Plant) started production in 2003. Although there is an increase in production from 360,000 vehicles per year to 450,000 vehicles per year,

Plant #1 (West Plant) will not increase its production of 180,000 vehicles per year. The increase of 90,000 vehicles per year will all be coming from Plant #2 (East Plant).

Source Definition

This automobile and light duty truck assembly plant consists of two (2) plants, Plant #1 (West Plant and Plant #2 (East Plant). Both plants are located on the same address at 4000 Tulip Tree Drive, Princeton, Indiana 47670, and are considered as one plant.

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.

An application for the purposes of this review was received on November 14, 2002. Additional information was received on January 23, 2003, and February 10, 2003.

Emission Calculations

Toyota has submitted the calculations but were modified by IDEM, OAQ.

- (a) Plant #1 (West Plant) - No emission change will result, since this plant will not be physically modified nor increase its production.
- (b) Modified Topcoat at Plant #2 (East Plant) and Modified Primer Surfacer at Plant #2 (East Plant)
The East Plant has just begun operating in 2003 and emissions from the West Plant are lower than the maximum allowed by the original 1996 permit. Therefore, actual emissions from the entire source in the previous two years have been lower than the total of 3,477 tons of VOC per year that are allowed by the 1996 permit. Because future emissions at the entire source after the modification to the East Plant will be more than 40 tons per year greater than the emissions in the previous two year, the Prevention of Significant Deterioration requirements apply to the modified Topcoat and Primer Surfacer operations. Because this permit requires more strict Best Available Control Technology at the East Plant's Topcoat operations, the allowable VOC emissions at the East Plant and the entire source overall are being reduced by 168 tons per year.

(1) VOC Emissions from the Modification of the topcoat

Original Solvent VOC Emissions	=	395.64 tons/year
New Waterborne VOC Emissions	=	<u>227.78 tons/year</u>
Reduction	=	167.86 tons/year

Original Sourcewide VOC Limit	=	3,477 tons/year
Reduction	=	<u>168 tons/year</u>
Future PTE/New Source-wide VOC Limit =		3,309 tons/year

Source-wide Past 2	=	790 tons/year
Year Average Actual VOC Emission		
Source-wide Allowable PTE	=	3,309 tons/year - 790 tons/year
After the Modification	=	2,519 tons/yr > 40 tons/year

Therefore, it is major for PSD.
The source existing limit of 3,477 tons of VOC year will be revised to 3,309 tons/year

- (2) PM/PM10 Emissions from the Modification:
- | | | |
|------------------------------------|---|-----------------------|
| Original Solvent PM/PM10 Emissions | = | 5.66 tons/year |
| New Waterborne PM/PM10 Emissions | = | <u>7.98 tons/year</u> |
| Increase | = | 2.32 ton/year |
| | | |
| Original Source wide PM Emission | = | 85.29 tons/year |
| Increase | = | <u>2.32 tons/year</u> |
| New Source wide PM Emission Level | = | 87.61 tons/year |
- (3) Primer Surfacer Emissions: The emission limits established in the 1996 permit for Toyota's Primer Surfacer operations are still considered the Best Available Control Technology today. Increased production will not affect the source-wide annual allowable limit.

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	87.61**
PM-10	87.61**
SO ₂	0.0
VOC	3,309*
CO	0.0
NO _x	0.0

Note: * - This is a revised source wide VOC controlled PTE, which is a reduction from 3,477 tons/year.

** - This is a revised source wide PM/PM10 controlled PTE, which increased from 85.29 tons/year.

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 PSD/Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-2 Prevention of Significant Deterioration and 326 IAC 2-7-10.5(f) Significant Source Modification, since the source is relaxing the limit in the issued PSD permit 051-5391-00037, issued on August 9, 1996; and the increase from its actual VOC emissions is greater than 40 tons per year.

County Attainment Status

The source is located in Gibson County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	not determined

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Gibson County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) Gibson County has been classified as attainment or unclassifiable for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based on permits issued to the source):

Pollutant	Potential To Emit (tons/year) as Referenced in CP 051-9500
PM	85.29
PM-10	85.29
SO ₂	26.81
VOC	*4505.6 3,477 3,488.9
CO	185.1
NO _x	552.8

Note: *4505.6 taken from CP 051-9500, issued on December 14, 1998, which should have used the PSD controlled and limited PTE of 3,477 tons/yr (PSD plantwide Limit in PSD Permit 051-5391, issued on August 6, 1996) as a baseline.

- (a) This existing source is a major stationary source because at least 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.

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.

Process/facility	Potential to Emit (tons/year)						
	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
Proposed Modification	2.32	2.32	0.0	> 40	0.0	0.0	-
PSD Significant Levels	25	15	40	40	100	40	-

Existing Source PTE	85.29	85.29	26.81	3,477	185.1	552.8	-
Source PTE After the Modification	87.61	87.61	26.81	3,309	185.1	552.8	

Note: 3,309 tons/yr - revised total VOC emissions from Plants #1 and #2

This modification to an existing major stationary source is major because the VOC emissions increase is greater than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do apply.

Federal Rule Applicability

- (a) New Source Performance Standards 326 IAC 12 and 40 CFR Part 60:
- (1) 40 CFR Part 60.390, Subpart MM - Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations. This rule applies to each prime coat operation, each guidecoat operation, and each topcoat operation at an automobile or light duty truck assembly plant that begins construction, reconstruction or modification after October 5, 1979. The source is currently subject to this NSPS.
- (A) Pursuant to 40 CFR Part 60.392, the Permittee shall not cause the discharge into the atmosphere from any affected facility VOC emissions in excess of the following:
- (1) 1.40 kg/lacs (11.64 lbs/gacs), from each guidecoat operation;
and
- (3) 1.47 kg/lacs (12.22 lbs/gacs), from each topcoat operation.

The source is currently subject to this NSPS.

- (B) Pursuant to Part 60.393, Toyota shall conduct an initial performance test, after the modification has been constructed in accordance with § 60.8(a) and thereafter for each calendar month for each affected facility according to the procedures in this section.
- (C) Section 60.8 (d) and (f) do not apply to the performance test procedures required by this section.
- (D) Toyota shall use the following procedures for determining the monthly volume weighted average mass of VOC emitted per volume of applied coating solids:
- (1) Toyota shall use the following procedures for each affected facility which does not use a capture system and a control device to comply with the applicable emission limit specified under § 60.392:
- (i) Calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. Toyota shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by Method 24. The IDEM, OAQ may require Toyota who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by Method 24 or an equivalent or alternative method. Toyota shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. The volume weighted average of the total mass of VOC per volume

of coating solids used each calendar month will be determined by the following procedures:

- (A) Calculate the mass of VOC used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used and “m” is the total number of VOC solvents used:

$$M_o + M_d = \sum_{i=1}^n L_{ci} D_{ci} W_{oi} + \sum_{j=1}^m L_{dj} D_{dj}$$

[$\sum_{j=1}^m L_{dj} D_{dj}$ will be zero if no VOC solvent is added to the coatings, as received].

Where:

- M_o = total mass of VOC in coatings as received (kilograms, kg)
- M_d = total mass of VOC in dilution solvent, kg
- L_{ci} = Volume of each coating (i) consumed, as received (liters)
- D_{ci} = Density of the coating (i) as received (kg/l)
- L_{dj} = Volume of each type VOC dilution solvent (j) added to the coatings, as received (liters)

- (B) Calculate the total volume of coating solids used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used:

$$L_s = \sum_{i=1}^n L_{ci} V_{si}$$

Where:

- L_s = Volume of solids in coatings consumed (liters)
- V_{si} = Proportion of solids by volume in each coating (i) as received

- (C) Select the appropriate transfer efficiency (T) from the following tables for each surface coating operation:

Application method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.39
Air Atomized Spray (solvent-borne coating)	0.50

Manual Electrostatic Spray	0.75
Automatic Electrostatic Spray	0.95
Electrodeposition	1.00

The values in the table above represent an overall system efficiency which includes a total capture of purge. If a spray system uses line purging after each vehicle and does not collect any of the purge material, the following table shall be used:

Application method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.30
Air Atomized Spray (solvent-borne coating)	0.40
Manual Electrostatic Spray	0.62
Automatic Electrostatic Spray	0.75

If Toyota can justify to the IDEM, OAQ's satisfaction that other values for transfer efficiencies are appropriate, the IDEM, OAQ will approve their use on a case-by-case basis. (1) When more than one application method (l) is used on an individual surface coating operation, Toyota shall perform an analysis to determine an average transfer efficiency by the following equation where "n" is the total number of coatings used and "p" is the total number of application methods:

- (D) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility by the following equation:

$$G = \frac{M_o M_d}{L_s T}$$

Each monthly calculation is a performance test for the purpose of this subpart.

- (2) Toyota shall use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with the applicable emission limit specified under § 60.392:

- (i) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (ii) Calculate the volume weighted average mass of VOC per volume of applied solids emitted after the control device, by the following equation:

$$N = G[1 - FE]$$

Where:

- N = Volume weighted average mass of VOC per volume of applied coating solids after the control device
- G = Volume weighted average mass of VOC per volume of applied solids (kg/l)
- F = Fraction of total VOC which is emitted by an affected facility that enters the control device
- E = VOC destruction efficiency of the control device

- (A) Determine the fraction of total VOC which is emitted by an affected facility that enters the control device by using the following equation where “n” is the total number of stacks entering the control device and “p” is the total number of stacks not connected to the control device:

$$F = \frac{\sum_{i=1}^n Q_{bi} C_{bi}}{\sum_{i=1}^n Q_{bi} C_{bi} + \sum_{k=1}^p Q_{fk} C_{fk}}$$

Where:

- F = fraction of total VOC which is emitted by an affected facility that enters the control device
- Q_{fk} = volumetric flow rate of the effluent gas flowing through exhaust stack (k) not entering the control device (dry standard cubic meters per hour)
- C_{fk} = concentration of VOC (as carbon) in the effluent gas flowing through exhaust stack (k) not entering the control device (ppm by volume)

If the owner can justify to the IDEM, OAQ satisfaction that another method will give comparable results, the IDEM, OAQ will approve its use on a case-by-case basis.

- (1) In subsequent months, Toyota shall use the most recently determined capture fraction for the performance test.

- (B) Determines the destruction efficiency of the control device using values of the volumetric flow rate of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation where “n” is the total number of stacks entering the control device and “m” is the total number of stacks leaving the control device:

$$E = \frac{\sum_{i=1}^n Q_{bi} C_{bi} - \sum_{j=1}^m Q_{aj} C_{aj}}{\sum_{i=1}^n Q_{bi} C_{bi}}$$

Where:

- E = VOC destruction or removal efficiency of the control device,
- Q_{aj} = volumetric flow rate of the effluent gas flowing through stack (j) leaving the control device (dry standard cubic meters per hour),
- Q_{bi} = volumetric flow rate of the effluent gas flowing through stack (i) entering the control device (dry standard cubic meters per hour),

- (1) In subsequent months, Toyota shall use the most recently determined VOC destruction efficiency for the performance test.

- (C) If an emission control device controls the emissions from more than one affected facility, Toyota shall measure the VOC concentration (C_{bi}) in the effluent gas entering the control device (in parts per million by volume) and the volumetric flow rate (Q_{bi}) of the effluent gas (in dry standard cubic meters per hour) entering the device through each stack. The destruction or removal efficiency determined using these data shall be applied to each affected facility served by the control device.

- (iii) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the

purposes of this subpart.

- (iv) Toyota shall use the following procedures for each affected facility which uses a capture system and a control device that recovers the VOC (e.g., carbon adsorber) to comply with the applicable emission limit specified under § 60.392.
- (A) Calculate the mass of VOC ($M_o + M_d$) used during each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (B) Calculate the total volume of coating solids (L_s) used in each calendar month for each affected facility as described under § 60.393(c)(1)(i).
- (C) Calculate the mass of VOC recovered (M_r) each calendar month for each affected facility by the following equation: $M_r = L_r D_r$
- (D) Calculate the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device during a calendar month by the following equation:

$$N = \frac{M_o + M_d - M_r}{L_s T}$$

- (E) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.
- (E) **40 CFR Part 60.394 - Monitoring of Emissions and Operations**
Pursuant to 40 CFR Part 60.394, Toyota shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:
- (1) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox. For catalytic oxidizers, a temperature measurement device shall be installed in the gas stream immediately before and after the catalyst bed.
- (2) Each temperature measurement device shall have an accuracy of the greater of ± 5 percent of the temperature being measured expressed in degrees Celsius or ± 2.5 °C.
- (3) Each temperature measurement device shall be equipped with a recording device so that a permanent record is produced.
- (F) **40 CFR Part 60.395 - Reporting and Record keeping Requirements.**
- (1) Toyota shall report the volume weighted average mass of VOC per volume of applied coating solids for each affected facility.

- (i) Where compliance is achieved through the use of incineration, Toyota shall include the following additional data in the control device every subsequent performance tests at which destruction efficiency is determined: the combustion temperature (or the gas temperature upstream and downstream of the catalyst bed), the total mass of VOC per volume of applied coating solids before and after the incinerator, capture efficiency, the destruction efficiency of the incinerator used to attain compliance with the applicable emission limit, and a description of the method used to establish the fraction of VOC captured and sent to the control device.
- (2) Toyota shall identify, record, and submit a written report to the IDEM, OAQ every calendar quarter of each instance in which the volume-weighted average of the total mass of VOC's emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under § 60.392. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to the IDEM, OAQ semiannually.
- (3) Where compliance is achieved through the use of a capture system and control device, the volume-weighted average after the control device should be reported.
- (4) Where compliance with § 60.392 is achieved through the use of incineration, Toyota shall continuously record the incinerator combustion temperature during coating operations for thermal incineration or the gas temperature upstream and downstream of the incinerator catalyst bed during coating operations for catalytic incineration. Toyota shall submit a written report at the frequency specified in § 60.7(c) and as defined below.
 - (i) For thermal incinerators, every three-hour period shall be reported during which the average temperature measured is more than 28 °C less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined as specified under § 60.393.
 - (ii) For catalytic incinerators, every three-hour period shall be reported during which the average temperature immediately before the catalyst bed, when the coating system is operational, is more than 28 °C less than the average temperature immediately before the catalyst bed during the most recent control device performance test at which destruction efficiency was determined as specified under § 60.393. In addition, every three-hour period shall be reported each quarter during which the average temperature difference across the catalyst bed when the coating system is operational is less than 80 percent of the average temperature difference of the device during the most recent performance tests at which destruction efficiency was determined as specified under Part 60.393.
 - (iii) For thermal and catalytic incinerators, if no such periods

occur, Toyota shall submit a negative report.

- (iv) Toyota shall notify IDEM, OAQ 30 days in advance of any test by Reference Method 25.

(G) 40 CFR Part 60.396 - **Reference Methods and Procedures**

- (1) Method 24 or an equivalent or alternative method approved by the IDEM, OAQ shall be used for the determination of the data used in the calculation of the VOC content of the coatings used for each affected facility. Manufacturers' formulation data is approved by the IDEM, OAQ as an alternative method to Method 24.

- (2) Method 25 or an equivalent or alternative method approved by the IDEM, OAQ shall be used for the determination of the VOC concentration in the effluent gas entering and leaving the emission control device for each stack equipped with an emission control device and in the effluent gas leaving each stack not equipped with a control device.

(H) 40 CFR Part 60.397 - **Modifications**

Pursuant to 40 CFR Part 60.397, the following physical or operational changes are not, by themselves, considered modifications of existing facilities:

- (1) Changes as a result of model year changeovers or switches to larger cars.
- (2) Changes in the application of the coatings to increase coating film thickness.

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

(b) National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63)

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

(c) Compliance Assurance Monitoring [40 CFR 64]

A Compliance Assurance Monitoring (CAM) Plan, in accordance with 40 CFR 64, is required for the Primer Surfacer/Guidecoat and the Topcoat because each emission unit potential to emit VOC before controls is greater than one hundred (100) tons per year. The CAM plan for these units was submitted on May 31, 2002 for the use of carbon adsorption units and thermal oxidizers for VOC control in order for these emission units to comply with the VOC emission limits. The CAM requirements of this section represent the information provided in the CAM plan submitted.

The Permittee shall monitor the carbon adsorption systems known as CAPSB2, CATCCC1, and CATCCC2. During coating operations, any three (3) hour period during which the average desorb temperature measured is lower than the specified indicator value will require a review of the process. This involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there is an excursion, the Permittee must record it and if necessary, initiate corrective action.

A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. The Permittee shall monitor the natural gas-fired regenerative thermal oxidizers known as CD-06, CD-07, and CD-08 as follows:

- (1) During coating operations, a three (3) hour period during which the average temperature measured is lower than the specified value by more than 28°C (50°F) will require a review of the process. This involves checking to confirm that an excursion has occurred (check for false readings or faulty equipment, etc.). If there is an excursion, the Permittee must record it and if necessary, initiate corrective action.
- (2) The specified value for the thermal oxidizer is the average temperature during the most recent control device performance test at which the destruction efficiency was determined. Prior to the performance test on the unit the specified value shall be 1350°F. The temperature sensor is to be located in the exhaust stream of the combustion chamber as recommended by the manufacturer or consistent with the configuration utilized to measure the combustion temperature during the most recent control device performance test.
- (3) The indicator ranges for carbon adsorption systems CAPSB2, CATCCC1, and CATCCC2 and the regenerative thermal oxidizers known as CD-06, CD-07, and CD-08 will be established within six (6) months after start-up of the equipment or within six (6) months after the issuance of this permit, whichever comes first.
- (4) The following quality assurance and quality control is required for the carbon adsorption system known as CAPSB2, CATCCC1, and CATCCC2 : Accuracy of the thermocouple will be verified by a second, or redundant thermocouple probe inserted at the inlet to the desorption zone. This validation check will be conducted annually. The acceptance criterion is ± 30 °F. Alternatively, the thermocouple can be re-calibrated annually.
- (5) The following quality assurance and quality control is required for the natural gas-fired regenerative thermal oxidizers known as CD-06, CD-07, and CD-08 . The operating temperature measuring device shall be calibrated, maintained and operated according to accepted practice and manufacturer's specifications. The temperature-measuring device shall meet current NSPS, Subpart MM requirements of ± 1 percent of the combustion temperature being measured expressed in degrees Fahrenheit or ± 0.5 °F, whichever is greater.
- (6) The following data averaging period is required for the carbon adsorption systems known as CAPSB2, CATCCC1, and CATCCC2 and the natural gas-fired regenerative thermal oxidizers known as CD-06, CD-07, and CD-08: The three (3) hour average temperature shall be calculated as the average of the readings (except that the average need only be calculated if readings occur below the specified temperature level).
- (7) The following frequency of data collection is required for the carbon adsorption systems known as CAPSB2, CATCCC1, and CATCCC2 and the natural gas-fired regenerative thermal oxidizers known as CD-06, CD-07, and CD-08: The temperature shall be monitored continuously and the temperature recorded at least every fifteen (15) minutes (minimum of four (4) equally spaced readings per hour).
- (8) The following excursion requirement is required for the carbon adsorption systems known as CAPSB2, CATCCC1, and CATCCC2 and natural gas-fired regenerative thermal oxidizers known as CD-06, CD-07, and CD-08: After becoming aware that there has been a temperature change that does not satisfy the specified value, an investigation will begin as soon as practical. The three (3) hour average temperature will be calculated when the temperature recorder indicates readings below the specified temperature. An investigation involves checking to confirm that an excursion has occurred (check

for false readings or faulty equipment, etc.). If there has been an excursion, it shall be recorded and, when necessary, corrective action shall begin as soon as practical.

PSD Rule Requirements:

- (a) 326 IAC 2-2 (Prevention of Significant Deterioration (PSD):
The requirements of this rule shall apply to Toyota Motor Manufacturing, Indiana, Inc. modification of the automobile and light duty truck manufacturing plant, which is a major modification to the existing major source, emitting VOC greater than 40 tons per year.
- (b) 326 IAC 2-2-3 (PSD Rule: Best Available Control Technology (BACT):
Pursuant to 326 IAC 2-2-3(a)(3), a major PSD modification shall apply Best Available Control Technology (BACT) for each pollutant subject to regulation under the provisions of the Clean Air Act for which said modification would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase of the pollutant would occur.

- (1) Since the Topcoat and the Primer operations are physically being modified, their existing PSD BACT will be re-analyzed.

The analysis includes the use of the following:

- (A) BACT/RACT/LAER Information System; USEPA, BACT/RACT/LAER Clearinghouse; and
 - (B) Other State, and Local Air Quality Permits
- (2) IDEM, OAQ, and Toyota evaluated control technologies selected as BACT or LAER for the following recently permitted and operational Automobile and Light Duty Truck Assembly Plants:
 - (A) Honda Manufacturing - Alabama;
 - (B) Hyundai - Alabama;
 - (C) General Motors Lansing Craft Center - Lansing Michigan;
 - (D) General Motors-Delta Township Michigan - Michigan;
 - (E) AM General - Mishawaka, Indiana

PSD BACT Recently Determined for Some Automobile and Light Duty Truck Manufacturing Plants As Compared to Toyota Motors Manufacturing, Indiana, Inc.						
COMPANY	Topcoat Operation (lbs/GACS)	Control Technology	Primer Surfacers/Guidecoat Operation (lbs/GACS)	Control Technology	Basis	DATE PERMIT ISSUED
Toyota -Princeton, IN	8.2 revised to 5.2	Automatic Zones-Carbon adsorption & Thermal Oxidizer	2.37	Automatic Zones-Carbon adsorption & Thermal Oxidizer	PSD-BACT	1996
Honda Mfg- Alabama	5.2	Oven and auto clearcoat emissions - RTO (95% Eff)	4.1	Oven emissions -RTO	PSD-BACT	10/4/02 11/15-02 (modified)
Nissan North America, Inc.- Canton, MS			4.1	Oven emissions -RTO	PSD-BACT	4/2/01
Saturn - Spring Hill, TN	12.26	Curing oven Exhaust - RTO Clearcoat spray zones - Carbon Abatement Basecoat heated flash zones -Carbon Abatement	11.67	Oven emissions- RTO	NSPS	6/6/00 9/5/02 (modified)
BMW Manufacturing Corp.- Spartanburg, SC	12.25	Curing oven exhaust - Rotary Carbon Adsorber/RTO	11.67	Oven emissions- RTO	NSPS	3/17/99 2/14/02 (modified)
Hyundai Motor -Alabama	5.2	Oven and clearcoat emissions -RTO (95% Eff)	4.1	Oven emissions- RTO	PSD-BACT	10/4/02 11/15/02 (modified)
FORD Motor Co.- Wixom, MI	5.29	Curing oven exhaust - Rotary Carbon Adsorber/RTO			PSD-BACT	12/6/1999 6/7/01 (modified)
AM General -Hummer 2 Mishawaka, IN	5.3 lb/gacs	Automatic Zones -RTO	2.9	Automatic Zones -RTO	PSD-BACT	6/28/00

The BACT/LAER Clearinghouse contained a more stringent BACT limit for the Topcoat operation than what the Topcoat operation of Toyota is currently limited. Therefore, Toyota will comply with a more stringent PSD BACT limit of 5.2 lbs/gacs versus its current PSD BACT limit of 8.2 lbs/gacs.

For the Primer Surfacers/Guidecoat, Toyota will comply with the same limit of 2.37 lbs/gacs, since this current limit is the most stringent in the industry.

PSD BACT Limit -

- Topcoat - 5.2 pounds per gallon applied coating solids (lbs/gacs)
- Primer Surfacer/Guidecoat - 2.37 pounds per gallon applied coating solids (lbs/gacs)

(c) 326 IAC 2-2-4 (PSD Rules: Air Quality Analysis)

Section (a) of this rule states that “any application for a permit under the provisions of this rule shall contain an analysis of ambient air quality in the area that the major stationary PSD source or major PSD modification would affect for each of the following pollutant:

- (1) For a modification, each pollutant regulated under the provisions of the Clean Air Act for which the modification would result in a significant net emissions increase.

During the original PSD permit review, the source was modeled at a higher rate of emissions of 3,477 tons/year, and it was determined that no violations of the NAAQS have occurred. Toyota is not required to do an air quality analysis for ozone impacts on the proposed major modification since the new source wide allowable (3,309 tons/year) is lower than the original allowable of 3,477 tons/year.

(d) 326 IAC 2-2-5 (PSD Rule: Air Quality Impact)

Section (1) of this rule states that the owner or operator of the major PSD modification shall demonstrate that allowable emissions increases in conjunction with all other applicable emissions increases or reduction (including secondary emissions) will not cause or contribute to air pollution in violation of:

- (1) any ambient air quality standard as designated in 326 IAC 1-3, and any air quality control region; or
- (2) any applicable maximum allowable increase over the baseline concentration in any area.

Section (c) of this rule states that air quality impact analysis required shall be conducted based upon the applicable air quality models, data bases and other requirements specified in the US EPA “Guidelines on Air Quality Models”.

Impact analysis is not necessary, since the new VOC allowable (3,309 tons/yr) is lower than the original VOC allowable of 3,477 tons/yr, which showed no significant impact on the nearest Class I area, which is Mammoth Cave National Park in Kentucky.

Additional Impact Analysis at level 3,477 tons/year showed no impacts on economic growth, soils, vegetation or visibility in the areas surrounding the plant. Therefore, it is not necessary to do an additional impact analysis at 3,309 tons/year emissions.

(e) 326 IAC 2-2-6 (PSD Rule: Best Available Control Technology (BACT):

Pursuant to 326 IAC 2-2 Sec. 6. (a) Any demonstration pursuant to section 5 of this rule should demonstrate that increased emissions caused by the proposed major stationary source or major modification will not exceed eighty percent (80%) of the available maximum allowable increases (MAI) over the baseline concentrations for sulfur dioxide, particulate matter, and nitrogen dioxide.

There are no PSD incremental consumption for this modification.

(f) 326 IAC 2-2-8 (PSD Rule: Source Obligation)

- (1) Pursuant to 326 IAC 2-2-8(a)(1) - Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is not completed within reasonable time.

- (2) Pursuant to 326 IAC 2-2-8(a)(2) - Approval for construction shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the Indiana Implementation Plan, and any other requirements under local, state or federal law.
- (g) 326 2-2-10 (PSD Rule: Source Information)
The owner operator of a proposed PSD modification shall submit all information necessary to perform any analysis or make any determination required under this rule, 326 IAC 2-2.
- Toyota has submitted the information necessary to perform analysis or make the determination required under PSD review.
- (h) 326 IAC 2-2-12 (PSD Rule: Permit Rescission)
The PSD permit or the significant source modification permit shall remain in effect unless it is rescinded, modified, revoked or expires.

State Rule Applicability -

- (a) 326 IAC 5-1 (Opacity 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:
- (1) 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.
- (2) 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.
- (b) 326 IAC 6-3-2 (Particulate Emission Limitations, Work Practices and Control Technologies)
Pursuant to 326 IAC 6-3-2, the surface coating operation at the Plant #2 (East Plant) shall be controlled by a dry filter, waterwash, or an equivalent control device subject to the following:
- (1) The source shall operate the control device in accordance with manufacturer's specifications.
- (2) If overspray is visibly detected at the exhaust or accumulates on the ground, the source shall inspect the control device and do either of the following no later than four (4) hours after such observation:
- (A) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (B) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

If overspray is visibly detected, the source shall maintain a record of the action taken as a result of the inspection, any repairs of the control device or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

Once the Part 70 permit is issued, section (2) of this rule shall not apply.

- (c) 326 IAC 8-2-2 (Surface Coating Emissions Limitation: Automobile and Light Duty Truck Coating Operations)
This rule establishes emission limitation for automobile and light duty truck surface coating operation which includes all passenger car or passenger car derivatives capable of seating twelve (12) passengers and any motor vehicle rated at 3,864 kilograms (8,500 pounds) gross weight or less which are designed primarily for the purpose of transportation or are

derivatives of such vehicles.

Pursuant to this rule, the VOC emissions from the topcoat and primer surfacer/guidecoat coating operations shall not exceed the following limits:

- (1) 0.23 kilograms per liter of coating (1.9 pounds per gallon) excluding water, delivered to the applicator from prime application, which includes primer surfacer/guidecoat, flash off area and oven operations.
- (2) 0.34 kilograms per liter of coating (2.8 pounds per gallon) excluding water, delivered to the applicator from topcoat application, which includes primer surfacer/guidecoat, flash off area and oven operations.

(d) 326 IAC 8-1-2 (Compliance Methods)

- (1) Pursuant to 326 IAC 8-1-2(a), the emission limitations under 326 IAC 8-2-2 for the Topcoat operation shall be achieved through one (1) or any combination of the following:
 - (A) Carbon adsorption.
 - (B) Thermal or catalytic incineration.
 - (C) Higher solids (low solvent) coatings
 - (D) Water borne coatings.
 - (E) Equivalent emission limitations based on an actual measured transfer efficiency greater than the specified baseline transfer efficiency as follows:

Category	Equivalent Emission Limit	Baseline Transfer Efficiency	Baseline Volume Percent Solids
Topcoat	1.83kg/l solids (15.1 lb/gacs)	30	62.0

Compliance with an equivalent emission limit shall be determined using the procedure found in "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations"; EPA-450/3-88-018; December 1988. This protocol allows demonstration of the daily volume weighted average from the total monthly topcoat usage, which means that the source can calculate their topcoat emission rate for each day at the end of each month.

- (2) Pursuant to 326 IAC 8-1-2(b), the emission limitations under 326 IAC 8-2-2 for the Primer Surfacer/Guidecoat operation shall be determined by the following equation:

$$\begin{aligned}
 E &= \frac{L}{1 - L/D} \\
 &= \frac{1.9}{1 - 1.9/7.36} \\
 &= 2.6 \text{ pounds of VOC per gallon coating solids as applied (this is the equivalent of 1.9 lbs/gal < water)}
 \end{aligned}$$

Where: L = Applicable emission limit from this article in pounds of VOC per gallon of coating (1.9 lbs/gal < water).

D = Density of VOC in coating in pounds per gallon of VOC.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

A solvent density of seven and thirty-six hundredths (7.36) pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article. Actual solvent density shall be used to determine compliance of surface coating operations using the compliance methods contained in subsection (a) or section 5 of this rule.

Using control to meet 1.9 lbs/gal < water

Pursuant to 326 IAC 8-1-2(c) the overall control efficiency of the thermal oxidizer shall be no less than the equivalent overall efficiency calculated by the following equation:

$$O = \frac{V - E}{V} \times 100$$

Where:

V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

O = Equivalent overall efficiency of the capture system and control device as a percentage.

Using the worst coating for the primer surfacer/guidecoat:

Density	=	9.51 lb/gal
Volume solids	=	32.7%
Weight % Organics	=	47%
Lbs of VOC/Gal solids	=	13.67

Required Overall Control Efficiency, Pursuant to 326 IAC 8-1-2:

$$O = \frac{(13.67 - 2.6)}{13.67} \times 100$$

= 81% This is the minimum overall control efficiency required

The source is in compliance (see Pages 3a of 5 TSD Appendix A).

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, OAQ, 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:

- (a) The Plant #2 (East Plant modification has applicable compliance monitoring conditions as specified below:

Pursuant to 326 IAC 2-2, Prevention of Significant Deterioration (PSD) requirements;

- (1) a continuous monitoring system shall be calibrated, maintained, and operated on the Thermal Oxidizer to continuously record combustion temperature of any effluent gas incinerated to achieve compliance with the VOC limits. The output of this system shall be recorded as an hourly average. For the purpose of measuring the temperature of the Thermal Oxidizer continuous shall mean no less often than once per minute. The temperature measurements shall be reduced to 1-hour block averages. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports whenever the hourly average temperature of the thermal oxidizer is below 1350 °F. An hourly average temperature that is below 1350 °F is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports shall be considered a violation of this permit.
 - (2) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.
- (b) Pursuant to 40 CFR Part 60.394, Toyota shall record all period (during actual coating operations) in excess of 3 hours during which average temperature in the Thermal Oxidizer used to control VOC emission from the Primer Surfacer/Guidecoat and the Topcoat remains more than 28 °C (50 °F) below the temperature at which compliance with VOC limits required in this NSPS was demonstrated using the most recent measurement of the Thermal Oxidizer efficiency.
- (c) Daily visual inspection shall be performed for all surface coating booths used in the vehicle production to verify that for the wet scrubber systems:
- (1) The continuous underflow water wash is operating properly to provide full coverage of the flood pan,
 - (2) The downdraft air system is providing sufficient air flow for normal booth operation, and
 - (3) Weekly observations shall be made of the wet scrubbers to determine whether visible overspray is leaving the booths.
- (d) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the surface coating booth stack while one or more of the booths are in operation. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.
- (e) Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable change in overspray emission, or evidence of overspray emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.
- (f) Additional inspections and preventive measures shall be performed as prescribed in the

Preventive Maintenance Plan.

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached **PSD/Significant Source Modification No. 051-16470-00037**.

Primer Surfacer/Guidecoat and Miscellaneous Operations

East Plant Potential to Emit																							
Source Category	Emission Point #	Process Description	Material	(lit/j)	(%)	(lit/j)	(%)	(Kg/L)	(%)	(kg/1*paint)	(Kg/L)	(%)	(%)	(%)	(%)	(%)	VOC EMISSION				PM EMISSION		
				usage	PERCENT OF PRODUCTION	PROD. RATIO/D USAGE	WEIGHT SOLIDS	SPECIFIC GRAVITY SOLID	VOLUME SOLIDS	VOC CONTENT (w/o water)	SPECIFIC GRAVITY PAINT	TRAN. EFFY.	PM Control Effy.	BOOTH & OVEN VOC	Capture Effy.	Control Device Effy.	VOC Abatement System Total Effy.	VOC w/o Control (kg*voc/j)	VOC w/ Control (kg*voc/j)	VOC w/ Control (ton/y)	PM w/o Control (kg*voc/j)	PM w/ Control (kg*voc/j)	PM w/ Control (ton/y)
5	7403	E-coat tank/BATH	ED	2.71	100%	2.71	96%	1.35	93%	0.072	1.116	95%	0	30	0	0%	0.0586	0.0586	11.63	0.000	0.000	0.000	
	7404	E-coat oven	ED	2.71	100%	2.71	96%	1.35	93%	0.072	1.116	95%	0	70	100	95	95%	0.1368	0.0068	1.36	0.000	0.000	0.000
	7405	ED dry sand	no voc	0.00	100%	0.00	100%	1.35	100%	0.000	1.350	0%	80	100		0%	0.0000	0.0000	0.00	0.000	0.00	0.012	
SUB-TOTAL (ELPO)																			12.99			0.01	
5	7407	sealer(lead)		0.17	100%	0.17	98%	1.66	92%	0.023	1.510	95%	0	20		0%	0.0008	0.0008	0.16	0.000	0.00	0.000	
5	7407	Anti-chip rocker pvc		0.56	100%	0.56	66%	1.74	54%	0.484	1.420	60%	98	50		0%	0.1350	0.1350	26.80	0.210	0.00	1.246	
				0.22	100%	0.22	88%	1.43	76%	0.165	1.330	60%	98	40		0%	0.0148	0.0148	2.94	0.098	0.00	0.580	
	7408	PVC U-coat booth	UBC	2.45	100%	2.45	97%	1.52	93%	0.039	1.386	80%	99	40		0%	0.0383	0.0383	7.59	0.690	0.01	2.048	
			UBC	2.62	100%	2.62	97%	1.52	93%	0.039	1.386	80%	99	40		0%	0.0408	0.0408	8.10	0.736	0.01	2.185	
	1-7410	Sealer	sealer	0.17	100%	2.20	98%	1.66	92%	0.023	1.510	95%	0	80	100	95	95%	0.0406	0.0020	0.40	0.000	0.00	0.000
	7410	SEALER OVEN	anti-chip	0.56	100%	0.56	65%	1.74	54%	0.498	1.420	60%	0	50	100	95	95%	0.1389	0.0069	1.38	0.000	0.00	0.000
			rocker pvc	0.22	100%	0.22	86%	1.43	76%	0.185	1.330	60%	0	60	100	95	95%	0.0249	0.0012	0.25	0.000	0.00	0.000
			UBC	2.45	100%	2.45	96%	1.52	93%	0.060	1.386	80%	0	60	100	95	95%	0.0883	0.0044	0.88	0.000	0.00	0.000
			UBC	2.62	100%	2.62	96%	1.52	93%	0.060	1.386	80%	0	60	100	95	95%	0.0942	0.0047	0.93	0.000	0.00	0.000
	7411	Primer/surf booth	hood-chip primer	0.28	100%	0.28	7%	1.38	5%	0.828	0.891	30%	98	95	90	80.75	73%	0.2231	0.0610	12.10	0.013	0.00	0.076
			primer	2.54	100%	2.54	60%	1.45	38%	0.494	1.231	75%	99	82	83.4	80.75	67%	1.0303	0.3364	66.77	0.352	0.00	1.046
			interior	1.44	100%	1.44	50%	1.35	30%	0.534	1.060	50%	98	85		0%	0.6495	0.6495	128.90	0.291	0.01	1.731	
			black out	0.40	50%	0.20	42%	1.20	28%	0.577	0.988	30%	98	94		0%	0.1074	0.1074	21.31	0.047	0.00	0.281	
			rep/primer	0.002	50%	0.00	14%	1.50	7%	0.821	0.950	30%	98	95		0%	0.0008	0.0008	0.15	0.000	0.00	0.000	
	7412	P/S oven	hood-chip primer	0.28	100%	0.28	3%	1.38	5%	0.862	0.891	30%	0	5	100	95	95%	0.0122	0.0006	0.12	0	0	0
			primer	2.54	100%	2.54	56%	1.45	38%	0.542	1.231	75%	0	18	100	95	95%	0.2483	0.0124	2.46	0	0	0
			interior	1.44	100%	1.44	42%	1.35	30%	0.620	1.060	50%	0	15	100	95	95%	0.1372	0.0069	1.36	0	0	0
			black out	0.40	50%	0.20	36%	1.20	28%	0.630	0.988	30%	0	6	100	95	95%	0.0075	0.0004	0.07	0	0	0
			rep/primer	0.002	50%	0.00	7%	1.50	7%	0.880	0.950	30%	0	5	100	95	95%	0.0000	0.0000	0.00	0	0	0
	7413	P/S Dry sand booth	no voc	0.00	100%	0.00	100%	1.45	100%		1.450	0%	80	100		0%	0.0000	0.0000	0.00	0	0	0	
SUB-TOTAL (PRIMER SURFACER)																			282.1			9.19	
7	7423-B	Recoat dry sand booth	no voc	0.09	10%	0.01	100%	1.15	100%		1.150	0%	80	100		0%	0.0000	0.0000	0.00	0.011	0.00210105	0.12	
	7423	Repair polish booth	solid lac.	0.00051	30%	0.00	19%	1.20	23%	0.804	0.995	30%	98	100		0%	0.0001	0.0001	0.02	0.000	5.89751E-07	0.00	
			base lac.	0.00103	30%	0.00	8%	1.25	4%	0.830	0.902	30%	98	100		0%	0.0003	0.0003	0.05	0.000	2.36216E-07	0.00	
			clear lac.	0.00040	30%	0.00	8%	1.17	15%	0.853	0.929	30%	98	100		0%	0.0001	0.0001	0.02	0.000	2.91892E-07	0.00	
			ad/promotor	0.00086	30%	0.00	6%	1.30	7%	0.795	0.843	30%	98	100		0%	0.0002	0.0002	0.04	0.000	3.27928E-07	0.00	
			polisher	0.00200	30%	0.00	28%	1.50	4%	0.700	0.970	100%	98	100		0%	0.0004	0.0004	0.08	0.000		0.00	
	7424	Blackout booth	flat lacquer	0.343	100%	0.55	22%	1.40	13%	0.740	0.947	35%	98	100		0%	0.4075	0.4075	80.87	0.068	0.001352	0.40	
			asca	0.071	100%	0.07	24%	1.39	24%	0.362	1.106	35%	98	100		0%	0.0257	0.0257	5.10	0.015	0.00039904	0.09	
	7457	Underbody touch up booth	flat lacquer	0.015	100%	0.02	22%	1.40	13%	0.740	0.947	35%	98	100		0%	0.0111	0.0111	2.20	0.002	3.68277E-05	0.01	
SUB-TOTAL (REPAIR)																			88.39			0.63	
PLASTIC PAINTING																							
6	7244A	Interior Parts Spray Booth	ABS -Lac. Topct	0.05	100%	0.05	18.34%	1.32	13%	0.748	0.916	35%	90	97	0	0	0%	0.0391	0.0391	7.76	0.006	0.000612857	0.18
		Interior Parts Spray Booth	ABS -Lac. Topct	0.97	100%	0.97	18.34%	1.32	13%	0.748	0.916	35%	90	97	86.0	80.75	69%	0.7040	0.2153	42.72	0.011031429	3.28	
	7244B	Interior Parts Oven	ABS -Lac. Topct	1.02	100%	1.02	18.34%	1.32	13%	0.748	0.916	35%	0	3		0%	0.0230	0.0230	4.56	0	0	0.00	
	7237B	Power Wash																0.0000	0.0000	0.00	0	0	0.00
	7237C	Power Wash																0.0000	0.0000	0.00	0	0	0.00
	7238	Primer Surfacer Booth (manual)	primer surfacer	0.10	100%	0.10	18.68%	1.36	12%	0.749	0.921	40%	98	90	0	0	0%	0.0679	0.0679	15.19	0.011	0.00021774	0.07
		Primer Surfacer Booth (auto)	primer surfacer	0.79	100%	0.79	18.68%	1.36	12%	0.749	0.921	40%	98	90	80	80.75	65%	0.5344	0.1892	42.33	0.079	0.001586304	0.53
	7239A	Primer Surfacer Oven (manual)	primer surfacer	0.10	100%	0.10	18.68%	1.36	12%	0.749	0.921	35%	0	10	100	95	95%	0.0075	0.0004	0.08	0	0	0.00
		Primer Surfacer Oven (robot)	primer surfacer	0.79	100%	0.79	18.68%	1.36	12%	0.749	0.921	40%	0	10	100	95	95%	0.0594	0.0030	0.66	0	0	0.00
	7240B	Primer Surfacer Surface Cooler																		0	0	0.00	
	7240B	Primer Surfacer Surface Cooler																		0	0	0.00	
	7242	Topcoat Oven (manual)	solid	0.12	22%	0.03	36.85%	1.15	28%	0.605	0.958	35%	0	7	100	95	95%	0.0011	0.0001	0.01	0.000	0.000	0.00
			base	0.05	87%	0.04	41.48%	1.2	33%	0.577	0.986	35%	0	5	100	95	95%	0.0013	0.0001	0.02	0.000	0.000	0.00
			clear	0.06	87%	0.05	55.40%	1.1	43%	0.434	0.973	35%	0	5	100	95	95%	0.0011	0.0001	0.01	0.000	0.000	0.00
			pearl	0.09	22%	0.02	58.68%	1.20	38%	0.507	1.227	35%	0	7	100	95	95%	0.0007	0.0000	0.01	0.000	0.000	0.00
	7241	Topcoat Oven "A" (robot)	solid	0.61	22%	0.13	36.85%	0.00	28%	0.605	0.958	60%	0	7	100	95	95%	0.0056	0.0003	0.08	0.000	0.000	0.00
			base	0.39	87%	0.39	41.48%	0.00	33%	0.577	0.986	35%	0	5	100	95	95%	0.0113	0.0006	0.16	0.000	0.000	0.00
			clear	0.30	87%	0.26	55.40%	1.15	43%	0.434	0.973	60%	0	5	100	95	95%	0.0057	0.0003	0.08	0.000	0.000	0.00
			pearl	0.45	22%	0.10	58.68%	0.00	38%	0.507	1.227	60%	0	7	100	95	95%	0.0035	0.0002	0.05	0.000	0.000	0.00

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

Company Name: Toyota Motor Manufacturing, Indiana, Inc.
Address City IN Zip: Route 41, Princeton, IN 47670
PSD/SSM No.: 051-16470
PII ID: 051-00037
Reviewer: Aida De Guzman
Date Application Received: Nov. 14, 2002

Source category	Material	Density (lb/gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/yr)	% VOC Emitted from booth or oven	Pounds VOC per gallon of coating less water	Summation of Coatings Uncontrolled (for lb/gal <water)	Summation of Coatings Controlled (for lb/gal <water)	VOC Abatement System Total % Effy	Summation of Coatings (for Abatement)	Pounds VOC per gallon of coating	Potential VOC tons per year	PM Control Effy	Particulate Potential (ton/yr)	lb VOC/gal solids	Summation of Coatings (for lb/gal solids)	Transfer Efficiency	VOC After Control (tons/yr)	PM After Control (tons/yr)
ELPO																								
Tank Bath																								
5	E-Coat Tank/ED(tank bath) (Manual Zone)	9.4	6.41%	0.0%	6.4%	0.0%	93.00%	0.71598	270000.000	30.00%	0.60	0.38229967	0.38229967	0.00%	0.00	0.60	17.42	0.0%	42.38	0.65	0.46	95%	17.42	42.38
E-Coat Oven																								
5	*7404E-Coat Tank/ED(oven) (Automatic Zone)	9.4	6.41%	0.0%	6.4%	0.0%	93.00%	0.71598	270000.000	70.00%	0.60	0.38229967	0.01911498	95.00%	0.68	0.60	40.64	0.0%	42.38	0.65	0.46	95%	2.03	42.38
PRIMER																								
AntiChip Booth																								
5	*7407/Antichip (Manual Zone)	11.9	33.84%	0.0%	33.8%	0.0%	54.00%	0.14795	270000.000	50.00%	4.04	0.41705211	0.41705211	0.00%	0.00	4.04	40.32	98.0%	63.06	7.48	1.11	60%	40.32	1.26
5	rocker pvc (Manual Zone)	11.2	12.32%	0.0%	12.3%	0.0%	76.00%	0.05812	270000.000	40.00%	1.38	0.059646	0.059646	0.00%	0.00	1.38	4.32	98.0%	30.74	1.81	0.11	60%	4.32	0.61
PVC-U-coat Booth																								
5	UBC (Manual Zone)	11.6	2.79%	0.0%	2.8%	0.0%	93.00%	0.64729	270000.000	40.00%	0.32	0.15043473	0.15043473	0.00%	0.00	0.32	11.35	99.0%	197.75	0.35	0.23	80%	11.35	1.98
5	UBC (Manual Zone)	11.6	2.79%	0.0%	2.8%	0.0%	93.00%	0.69220	270000.000	40.00%	0.32	0.16087213	0.16087213	0.00%	0.00	0.32	12.10	99.0%	210.75	0.35	0.24	80%	12.10	2.11
Sealer Oven																								
5	7407/Antichip (Automatic Zone)	11.9	34.82%	0.0%	34.8%	0.0%	54.00%	0.14795	270000.000	50.00%	4.15	0.42912986	0.02145649	95.00%	0.14	4.15	41.48	0.0%	62.12	7.69	1.14	60%	2.07	62.12
5	rocker pvc (Automatic Zone)	11.2	13.81%	0.0%	13.8%	0.0%	76.00%	0.05812	270000.000	60.00%	1.54	0.06685968	0.00334298	95.00%	0.06	1.54	7.26	0.0%	30.22	2.03	0.12	60%	0.36	30.22
5	UBC (Automatic Zone)	11.6	4.30%	0.0%	4.3%	0.0%	93.00%	0.64729	270000.000	60.00%	0.50	0.23185281	0.01159264	95.00%	0.61	0.50	26.24	0.0%	194.68	0.54	0.35	80%	1.31	194.68
5	UBC (Automatic Zone)	11.6	4.30%	0.0%	4.3%	0.0%	93.00%	0.69220	270000.000	60.00%	0.50	0.24793912	0.01239696	95.00%	0.66	0.50	28.06	0.0%	208.19	0.54	0.37	80%	1.40	208.19
PrimerSurfacer Booth																								
5	Hood chip primer (Automatic Zone)	7.5	92.27%	0.0%	92.3%	0.0%	5.00%	0.07398	270000.000	95.00%	6.90	0.56861701	0.15352659	73.00%	0.05	6.90	65.48	98.0%	4.04	138.04	10.21	30%	17.68	0.08
5	Primer (Automatic Zone)	10.3	39.64%	0.0%	39.6%	0.0%	38.00%	0.07107	270000.000	82.00%	4.10	0.23467399	0.07744242	67.00%	0.05	4.10	32.25	99.0%	14.97	10.79	0.77	75%	10.64	0.15
5	Interior (Manual Zone)	8.9	50.02%	0.0%	50.0%	0.0%	30.00%	0.38045	270000.000	85.00%	4.45	1.58520808	1.58520808	0.00%	0.00	4.45	194.35	98.0%	114.23	14.84	5.65	50%	194.35	2.28
5	Black out (Manual Zone)	8.3	57.98%	0.0%	58.0%	0.0%	28.00%	0.10568	135000.000	94.00%	4.81	0.51040629	0.51040629	0.00%	0.00	4.81	32.27	98.0%	17.42	17.19	1.82	30%	32.27	0.35
5	Rep/Primer (Manual Zone)	8.0	85.80%	0.0%	85.8%	0.0%	7.00%	0.00053	135000.000	95.00%	6.85	0.00378798	0.00378798	0.00%	0.00	6.85	0.23	98.0%	0.03	97.81	0.04	30%	0.23	0.00
P/S Oven																								
5	Hood chip primer (Automatic Zone)	7.2	99.29%	0.0%	99.3%	0.0%	5.00%	0.07398	270000.000	5.00%	7.19	0.611878	0.0305939	95.00%	0.07	7.19	3.59	0.0%	0.36	143.77	10.64	30%	0.18	0.36
5	Primer (Automatic Zone)	4.6	99.29%	0.0%	99.3%	0.0%	38.00%	0.67107	270000.000	18.00%	4.52	5.55032401	0.2775162	95.00%	0.64	4.52	73.67	0.0%	0.73	11.89	7.98	75%	3.68	0.73
5	Interior (Automatic Zone)	5.2	99.29%	0.0%	99.3%	0.0%	30.00%	0.38045	270000.000	15.00%	5.17	3.14664755	0.15733238	95.00%	0.36	5.17	39.85	0.0%	0.95	17.24	6.56	50%	1.99	0.95
5	Black out (Automatic Zone)	5.3	99.29%	0.0%	99.3%	0.0%	28.00%	0.10568	135000.000	6.00%	5.25	0.87406417	0.04370321	95.00%	0.10	5.25	2.25	0.0%	0.19	18.76	1.98	30%	0.11	0.19
5	Rep/Primer (Automatic Zone)	7.4	99.29%	0.0%	99.3%	0.0%	7.00%	0.00053	135000.000	5.00%	7.34	0.00438355	0.00021918	95.00%	0.00	7.34	0.01	0.0%	11.51	104.82	0.06	30%	0.00	11.51

Note: Automatic Zone is the only section controlled

Volume Weighted Average

Total	6.38650
Manual Zone	2.7482
Automatic Zone	3.63830

Manual Z.	3.26971
Automatic Z.	0.80824

Vol Wt. Average: 1.19
Total Vol Wt. Ave. 1.41 lb/gal < water < 1.9 lb/gal less water

uncontrolled Vol. Wt. Ave.

15.61838
2.45

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 hrs/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

East Plant Topcoat BACT Determination

Emission Point #	Material	(lit/j) usage (weighted)	(%) NVvol	(kg/l*paint) VOCan	(%) transfer efficiency	(%) bth/oven split	VOC Control ratio	(kg*voc/j) VOC em. w/control	(lit/j) Applied Solids	kg/lacs	NEW BACT lbs/gacs	Old BACT lbs/gacs
TOPCOAT												
1-7417 A Booth	solid	0.5700	45	0.476	70	80	0.61	0.085	0.180			
	base,waterborne	2.9500	18	0.160	70	85	0.61	0.156	0.372			
	clear	2.2500	46	0.470	70	85	0.61	0.351	0.725			
	pearl mica base solid	0.5700	43	0.490	70	80	0.61	0.087	0.172			
1-7420 A Oven	solid	0.5700	45	0.476	70	20	0.95	0.003				
	base,waterborne	2.9500	18	0.160	70	15	0.95	0.004				
	clear	2.2500	46	0.470	70	15	0.95	0.008				
	pearl mica base solid	0.5700	43	0.490	70	20	0.95	0.003				
1-7418 B Booth	solid	0.5700	45	0.476	70	80	0.61	0.085	0.180			
	base,waterborne	2.9500	18	0.160	70	85	0.61	0.156	0.372			
	clear	2.2500	46	0.470	70	85	0.61	0.351	0.725			
	pearl mica base solid	0.5700	43	0.490	70	80	0.61	0.087	0.172			
1-7421 B Oven	solid	0.5700	45	0.476	70	20	0.95	0.003				
	base,waterborne	2.9500	18	0.160	70	15	0.95	0.004				
	clear	2.2500	46	0.470	70	15	0.95	0.008				
	pearl mica base solid	0.5700	43	0.490	70	20	0.95	0.003				
1-7423 Repair	solid lac.	0.0002	23	0.804	30	100	0.000	0.000	0.000			
	base lac.	0.0003	4	0.830	30	100	0.000	0.000	0.000			
	clear lac.	0.0001	15	0.853	30	100	0.000	0.000	0.000			
1-7424 Blackout	flat lacquer	0.5507	13	0.740	35	100	0.000	0.407	0.026			
	asca	0.0089	24	0.362	35	100	0.000	0.003	0.001			
1-7457	(UB touchup) flat lacquer	0.0286	13	0.740	35	100	0.000	0.021	0.001			
1-7427 Offline Repair	solid	0.0001	41	0.476	30	100	0.000	0.000	0.000			
	base	0.0002	34	0.572	30	100	0.000	0.000	0.000			
	clear	0.0001	46	0.470	30	100	0.000	0.000	0.000			
	solid lac.	0.0001	41	0.522	30	100	0.000	0.000	0.000			
	base lac.	0.0003	23	0.804	30	100	0.000	0.000	0.000			
	clear lac.	0.0006	4	0.830	30	100	0.000	0.001	0.000			
1-7432 Paint Hospital	solid	0.0001	41	0.476	30	100	0.000	0.000	0.000			
	base	0.0002	34	0.572	30	100	0.000	0.000	0.000			
	clear	0.0001	46	0.470	30	100	0.000	0.000	0.000			
	color base	0.0001	41	0.522	30	100	0.000	0.000	0.000			
	solid lac.	0.0002	23	0.804	30	100	0.000	0.000	0.000			
	base lac.	0.0003	4	0.830	30	100	0.000	0.000	0.000			
clear lac.	0.0001	15	0.853	30	100	0.000	0.000	0.000				
TOTALS:								1.826	2.923	0.62	5.2	8.20

Methodology:

Vol. Weighted Ave of kg/ liter applied solids = sum of VOC emission w/ control, kg/job/ sum applied solids, lit/job
 Vol. Weighted Ave of lbs/gal applied solids = kg/lacs*2.2 lbs/kg * 3.78 lit/gal