# CONSTRUCTION PERMIT
# OFFICE OF AIR MANAGEMENT

## Union Tank Car Company
## 151st & Railroad Avenue
## East Chicago, Indiana 46312

is hereby authorized to construct

and operate the following facilities to be located at UTC plant #1, used in the painting of manufactured steel railroad tank cars the equipment listed in the Page 2 of this permit:

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

This Construction Permit CP 089-7082 will supersede Operation Permit OP 45-10-93-0585, issued on March 29, 1990.

| Construction Permit No.: CP-089-7082-00332 | |
|---|---|
| Issued by:<br><br>Paul Dubenetzky, Branch Chief<br>Office of Air Management | Issuance Date: |

(a) Three (3) identical paint booths, identified as 3a, 3b, and 3c, each has a capacity of 0.75

tank car per hour. Each paint booth is equipped with two (2) air-assisted airless spray guns. These paint booths will replace existing three (3) paint booths. The PM overspray from each paint booth will be controlled by dry filters,

(b) Three (3) natural gas-fired paint room make-up air heaters, each has a heat input of 1.15 million Btu per hour (mmBtu/hr),

(c) Three (3) natural gas-fired drying room heaters, each has a heat input capacity of 3.45 mmBtu/hr, and

(d) Three (3) natural gas-fired drying room catalytic infra-red heaters, each has a heat input capacity of 2.988 mmBtu/hr.

All the above heaters will replace existing five (5) natural gas-fired forced air convection type heaters each with a heat input capacity of 4.5 mmBtu/hr, and three (3) down draft water wash natural gas-fired make-up air heaters each with a heat input capacity of 3.5 mmBtu/hr.

## Construction Conditions

General Construction Conditions

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

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

Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

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

5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

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

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

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

   (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).

(e) The Permittee has submitted their Part 70 permit application (T089-7732-00332) on December 16, 1996 for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

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

## Operation Conditions

General Operation Conditions

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

2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:

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

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

(c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

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

Transfer of Permit

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

(a) In the event that ownership of this railroad tank car manufacturing is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.

(c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

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

   (a) Violation of any conditions of this permit.

   (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

   (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

   (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

   (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

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

Malfunction Condition

7. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

   (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

   (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

   (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

   (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39].

Annual Emission Reporting

8. That pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual statement must be submitted to:

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

and

Northwest Office
NBD Bank Building
504 North Broadway, Suite 418
Gary, Indiana 46402

The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30.

Opacity Limitations

9. (a) Pursuant to 326 IAC 6-1-11.1 (d)(9), this facility shall meet a twenty percent (20%), three (3) minute opacity standard. (b) Compliance with this limitation shall be determined by 40 CFR 60 Appendix A, Method 9, except that the opacity standard shall be determined as an average of twelve (12) consecutive observations recorded at fifteen (15) second intervals. (c) Compliance of any operation lasting less than three (3) minutes shall be determined as an average of consecutive observations recorded at fifteen (15) second intervals for the duration of the operation.

Particulate Matter Less Than Ten Microns (PM10) Limitation

10. That pursuant to 326 IAC 2-1-3(i)(8), the PM10 emissions from the following facilities shall be limited as follows:

| Facility | PM10 Allowable Emissions (lb/hr) |
|---|---|
| 3 drying room heaters @ 3.45 mmBtu/hr | 0.040 each |
| 3 drying room catalytic infra-red heaters @ 2.988 mmBtu/hr | 0.040 each |
| TOTAL | 0.24 |

11. Particulate Matter Contingency Measures

The source is subject to the contingency measures specified in rule 326 IAC 6-1-11.2, (see rule attached).

Volatile Organic Compound (VOC) Limitations

12. That pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of coatings applied to steel railroad tank cars shall be limited to:

| Coatings | Limit (pounds of VOC/gallon of coating less water delivered to the applicator) |
|---|---|
| Extreme Performance Coat | 3.5 |

Emission Minimization

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

Emission Offset Minor Source Limit

14. That the VOC input usage from the three (3) paint booths, 3a, 3b, and 3c shall be limited to 114.5 tons per year based on a monthly rolling limit. Compliance with this limit will make 326 IAC 2-3, Emission Offset rule not applicable.

During the first 12 months of operation, the input raw material usage shall be limited such that the total usage divided by the accumulated months of operation shall not exceed the limit specified.

HAPs Emissions Limit

15. That emissions of hazardous air pollutants (HAPs) from paint booths 3a, 3b, and 3c shall not exceed 8.25 tons per year based on a monthly rolling for any individual HAP and 22 tons per year based on a monthly rolling for any combination of HAPs. Compliance with this limit will make 326 IAC 2-1-3.4 (New Source Toxics Control Rule) not applicable.

Open Burning

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

Emergency Reduction Plans

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

(a) The Permittee prepared and submitted written emergency reduction plans (ERPs) consistent with safe operating procedures on December 16, 1996.

(b) If the ERP is disapproved by IDEM, OAM and Northwest Office, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM and, Northwest Office shall supply such a plan.

(c) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(d) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(e) Upon direct notification by IDEM, OAM and Northwest Office, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3].

Reporting Requirements

18. That a log of information necessary to document compliance with operation permit condition nos. 14 and 15 shall be maintained. These records shall be kept for at least the past 36 month period and made available upon request to the Office of Air Management (OAM).

(a) A quarterly summary shall be submitted to:

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

and

Northwest Office
NBD Bank Building
504 North Broadway, Suite 418
Gary, Indiana 46402

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

(b) Unless otherwise specified in this permit, any notice, report, or other submissions required by this permit shall be timely if:

(i) Postmarked on or before the date it is due; or

(ii) Delivered by any other method if it is received and stamped by IDEM, OAM, and Northwest Office on or before the date it is due.

(c) All instances of deviations from any requirements of this permit must be clearly identified in such reports.

(d) Any corrective actions taken as a result of an exeedance of a limit, an excursion from the parametric values, or a malfunction that may have caused excess emissions must be clearly identified in such reports.

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

# Indiana Department of Environmental Management
# Office of Air Management
# and
# Northwest Office

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

**Source Background and Description**

| | |
|---|---|
| Source Name: | Union Tank Car Company |
| Source Location: | 151st & Railroad Avenue, East Chicago, Indiana 46312 |
| County: | Lake |
| Construction Permit No.: | CP-089-7082-00332 |
| SIC Code: | 3743 |
| Permit Reviewer: | Aida De Guzman |

The Office of Air Management (OAM) has reviewed an application from Union Tank Car Company relating to the construction and operation of the following facilities to be located at UTC plant #1, used in the painting of manufactured steel railroad tank cars:

(a) Three (3) identical paint booths, identified as 3a, 3b, and 3c, each has a capacity of 0.75 tank car per hour. Each paint booth is equipped with two (2) air-assisted airless spray guns. These paint booths will replace existing permitted three (3) paint booths. The PM overspray from each paint booth will be controlled by dry filters.

**The three (3) paint booths will replace the existing permitted paint lines, which include the paint booths along with their drying ovens, coating applicators and compressors that were installed in 1965. These existing paint lines are permitted under operating permit OP 45-10-93-0585, issued on March 29, 1990.**

**The structure of the existing paint booths (20' width x 40' height x 24' length) places the painter at a fixed platform that is 6 feet above the tank car being painted. This distance forces the use of Methyl Ethyl Ketone (MEK) to prevent the solvent based coating from drying enroute to the tank car.**

**The proposed paint booths with powered man mover platforms will enable the source to use water based coating and will reduce the solvent used to prevent the coating from drying enroute to the tank car.**

(b) Three (3) natural gas-fired paint room make-up air heaters, each has a heat input of 1.15 million Btu per hour (mmBtu/hr),

(c) Three (3) natural gas-fired drying room heaters, each has a heat input capacity of 3.45 mmBtu/hr, and

(d) Three (3) natural gas-fired drying room catalytic infra-red heaters, each has a heat input capacity of 2.988 mmBtu/hr.

**All the above heaters will replace existing five (5) natural gas-fired forced air convection**

**type heaters each with a heat input capacity of 4.5 mmBtu/hr, and three (3) down draft water wash natural gas-fired make-up air heaters each with a heat input capacity of 3.5 mmBtu/hr.**

This Construction Permit CP 089-7082 will supersede Operation Permit OP 45-10-93-0585, issued on March 29, 1990.

**Recommendation**

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

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

An application for the purposes of this review was received on November 4, 1996, with additional information received on July 23, 24, 26, 29, 1997, and on August 25, 1997.

**Emissions Calculations**

(a) Natural Gas Combustion: See page 1 of 5 TSD Appendix A for detailed calculations.

(b) New Paint Booths: See page 2 of 5 TSD Appendix A for detailed calculations.

(c) New Paint Booths HAPs Emissions: See page 3 of 5 TSD Appendix A for detailed calculations.

(d) Existing Paint Booths: See page 4 of 5 TSD Appendix A for detailed calculations.

(e) Existing Paint Booths HAPs Emissions: See page 5 of 5 TSD Appendix A for detailed calculations.

**Total Potential and Allowable Emissions**

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

| Pollutant | Allowable Emissions (tons/year) | Potential Emissions (tons/year) |
|---|---|---|
| Particulate Matter (PM) | 299.9 | 299.9 |
| Particulate Matter (PM10) | 299.9 | 299.9 |
| Sulfur Dioxide ($SO_2$) | 0.1 | 0.1 |
| Volatile Organic Compounds (VOC) | 283.4 | 283.4 |
| Carbon Monoxide (CO) | 2.0 | 2.0 |
| Nitrogen Oxides ($NO_x$) | 9.5 | 9.5 |
| Single Hazardous Air Pollutant (HAP) | 31.5 | 31.5 |
| Combination of HAPs | 63.12 | 63.12 |

(a) The potential emissions are synonymous with the allowable emissions, therefore, either potential or allowable emissions before control can be used for the permitting determination.

(b) Allowable emissions (as defined in the Indiana Rule) of PM and VOC are each greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

(c) Allowable emissions (as defined in the Indiana Rule) of a single hazardous air pollutant (HAP) are greater than 10 tons per year and/or the allowable emissions of any combination of the HAPs are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, a construction permit is required.

**County Attainment Status**

(a) Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Lake County has been designated as severe nonattainment for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(b) Lake County, the area bounded on the north by Lake Michigan, on the west by the Indiana-Illinois State line, on the south by U.S. 30 from the State line to the intersection of I-65 then following I-65 to the intersection of I-94 then following I-94 to the Lake-Porter County line & on the east by the Lake-Porter County line has been classified as nonattainment for Total Suspended Particulate (TSP), and SO2. The source is located in this part of the county that is nonattainment for TSP and SO2. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(c) Lake County, part of the City of East Chicago (area bounded by Columbus Drive on the north, the Indiana Harbor Canal on the west, 148th Street if extended, on the south and Euclid Avenue on the east) is nonattainment for Carbon Monoxide (CO). The source is located in this part of the county that is nonattainment for CO. The rest of the county has been classified as attainment or unclassifiable for CO. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

**Source Status**

Existing Source PSD, Part 70 or FESOP Definition (based on the 1994 emission data from the " OAM Emissions Inventory Report"):

| Pollutant | Emissions (ton/yr) |
|---|---|
| PM | 3.9 |
| PM10 | 0.077 |
| $SO_2$ | 0.076 |

| | |
|---|---|
| VOC | 101.4 |
| CO | 0.51 |
| $NO_x$ | 16.7 |

(a) This existing source is a major stationary source for ozone, because volatile organic compound (VOC) a severe nonattainment pollutant is emitted at a rate of more than 25 tons per year.

(b) This existing source is not major for SO2, PM, PM10, and CO, because these nonattainment pollutants are not emitted at a rate of 100 tons per year or more.

**Proposed Modification**

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

| Pollutant | PM (ton/yr) | PM10 (ton/yr) | $SO_2$ (ton/yr) | VOC (ton/yr) | CO (ton/yr) | $NO_x$ (ton/yr) |
|---|---|---|---|---|---|---|
| Future Potential From Proposed Modification | 4.1 | 4.1 | 0.1 | 283 | 2.0 | 9.5 |
| Past Actual | 3.9 | 0.1 | 0.1 | 101 | 0.51 | 16.6 |
| Net Emissions | 0.2 | 4.0 | 0.0 | 182 | 1.49 | -7.1 |
| Limited Net Emissions | -2.6 | -2.6 | 0.0 | 24.0 | 1.49 | -7.1 |
| Deminimis Levels | - | - | - | 25.0 | | 25.0 |
| Offset Significant Levels | 100 | 100 | 100 | | 100 | |

There are no contemporaneous increases and decreases made by the source for the past five years.

This modification to an existing major stationary source is major because the emissions increase for volatile organic compounds (VOC) at 182 ton per year is greater than the Emission Offset significant level of 25 tons per year. The source however, requested a limit in the VOC input usage to 24 tons per year to avoid being subjected to the requirements of 326 IAC 2-3, the Emissions Offset rule.

The PM controlled emissions will be scaled down, based on the 24 tons of VOC limit as follows:

(1) Paint Booths PM Emissions Limit = $\frac{\text{VOC limit, 24 ton/yr}}{\text{( VOC pot'l emissions, 282.9 ton/yr)}}$ * (Pot'l controlled PM emissions, 3 ton/yr)
= 0.25 ton/yr

(2) Total PM Emissions = Paint booths emissions limit, 0.25 ton/yr + natural gas emissions, 1.1 ton/yr

Limit = 1.35 ton/yr

(3) Net Emission Limit = Total PM emissions limit, 1.35 ton/yr - Past actual PM emissions, 3.9 ton/yr
= -2.6 ton/yr

The HAPs emissions will also be scaled down, based on the 24 tons of VOC limit as follows:

(1) Single HAP Emissions Limit = $\frac{\text{(VOC limit, 24 ton/yr) * (Pot'l single HAP emission, 31.5 ton/yr)}}{\text{( VOC pot'l emissions, 282.9 ton/yr)}}$
= 2.7 ton/year

(2) Combined HAP Emissions Limit = $\frac{\text{(VOC limit, 24 ton/yr) * (Pot'l single HAP emission, 63.12 ton/yr)}}{\text{( VOC pot'l emissions, 282.9 ton/yr)}}$

| | VOC (ton/year) | Single HAP (ton/year) | Combined HAPs (ton/year) |
|---|---|---|---|
| Future Potential Fr. The Modification | 283.4 | 31.5 | 63.12 |
| Actual Emissions | 101.4 | 12.6 | 20.5 |
| Net Emission Limit | 24.0 | 2.7 | 5.4 |
| Total VOC Limit Taken by the Source | 101.4 + 24.0 = 125.4 | 9.0 | 24.0 |

The source had taken a total limit of 125.4 tons/year and had chosen an averaging time of monthly rolling for recordkeeping. Monthly rolling totals lose the detail of each daily emissions during each month. The loss of that detail makes compliance determination difficult. The problems with determining compliance with the underlying applicable emissions limit are eliminated from a practical perspective when the total is at least a month's of emissions less than the underlying limit. Therefore, one month will be subtracted from the yearly limit as follows:

125.4 tons per year (11/12 months) = 114.5 tons/year

**Part 70 Permit Determination**

326 IAC 2-7 (Part 70 Permit Program)
This existing source has submitted their Part 70 (T-089-7732-00332) application on December 16, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

**Federal Rule Applicability**

(1) New Source Performance Standards (NSPS):
There are no New Source Performance Standards (326 IAC 12) and 40 CFR Part 63 applicable

to this facility.

(2) National Emissions Standards for Hazardous Air Pollutants (NESHAPs):
This modification does not involve any halogenated degreasing operation. Therefore, the NESHAP for this type of operation would not apply.

**State Rule Applicability**

(1) 326 IAC 2-6 (Emission Reporting)
This source is subject to 326 IAC 2-6 (Emission Reporting), because it is located in Lake County and emits more than 10 tons/yr of VOC. Pursuant to this rule, the owner/operator of this source must annually submit an emission statement of the source. The annual statement must be received by April 15 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

(2) 326 IAC 6-1 (PM Emissions Limitation)
These paint booths are not subject to this rule, because their actual PM emissions are less than 10 tons per year.

(3) 326 IAC 8-2-9 (Miscellaneous Metal Coatings)
The three (3) paint booths are subject to this rule, which mandates a VOC emissions of 3.5 pounds per gallon of coating less water for extreme performance coatings designed for exposure to temperature s consistently above ninety-five degrees Celsius (95 $^0$C), detergents abrasive or scouring agents, solvents, corrosive atmosphere, outdoor weather at all times, or similar environment conditions.

The three (3) paint booths are in compliance with this rule, since the VOC emissions from the coating used are below the 3.5 pounds per gallon of coating less water (see calculations on page 2 of 5 TSD Appendix A).

(4) 326 IAC 8-7-1 (Specific VOC Reduction Requirements for Lake, Porter, Clark and Floyd Counties)
The paint booths are not subject to this rule because they are covered by rule 326 IAC 8-2-9.

(5) 326 IAC 2-1-3.4 (New Source Toxics Control Rule)
The three (3) paint booths are not subject to this rule because they are not major for HAPs emissions, after their VOC input usage has been limited to 24 tons per year.

(6) 326 IAC 6-1-10.1 (PM10 Emission Requirements)
This rule specifically applies to the existing paint ovens 1 through 5 which mandates an allowable PM emissions of 0.003 pounds per million Btu (lb/mmBtu) which is equivalent to 0.06 pounds per hour. The existing ovens are being replaced by new 6 drying rooms heaters, which will have new allowable PM10 emissions.

Pursuant to 326 IAC 2-1-3 (i)(8) the three (3) new natural gas-fired drying room heaters, each has a heat input capacity of 3.45 mmBtu/hr, and the three (3) new natural gas-fired drying room catalytic infra-red heaters, each has a heat input capacity of 2.988 mmBtu/hr, will have a new

PM10 allowable emissions of 0.04 pound per hour each or a total PM10 allowable emissions of 0.24 pounds per hour.

The new drying rooms heaters are in compliance with this rule, because each PM10 emissions do not exceed the PM10 allowable emissions of 0.04 pound per hour. (See spreadsheet on page 1 of 5 TSD Appendix A).

(7) 326 IAC 6-1-11.1 (Fugitive Particulate Matter Control Requirements)
Pursuant to Subsection (d)(9), any facility or operation not specified in this subsection shall meet a twenty percent (20%), three (3) minute opacity standard. Compliance with this limitation shall be determined by 40 CFR 60 Appendix A, Method 9, except that the opacity standard shall be determined as an average of twelve (12) consecutive observations recorded at fifteen (15) second intervals. Compliance of any operation lasting less than three (3) minutes shall be determined as

an average of consecutive observations recorded at fifteen (15) second intervals for the duration of the operation.

(8) 326 IAC 6-1-11.2 (Particulate Matter Contingency Measures)
This rule applies to all sources, subject to section 11.1(a) of this rule (see attached rule).

**Toxic Emissions**

Indiana presently requests applicants to provide information on emissions of the 189 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

(a) The proposed construction of paint booths will result in a decrease potential HAPs emissions.

(b) See attached spreadsheets pages 3 of 5 and 5 of 5 TSD Appendix A for detailed air toxic calculations.

**Conclusion**

The construction of this paint booths including drying rooms heaters will be subject to the conditions of the attached proposed **Construction Permit No. CP-089-7082-00332.**

Appendix A: Existing Source
Natural Gas Combustion Only
Commercial Boiler (mm Btu/hr 0.3 - < 10)

Company: Union Tank Car Co.
Address: 151st & Railroad Ave., E. Chicago, IN 46312
CP: 089-7082
Plt ID: 089-00332
Reviewer: Aida De Guzman
Date: July 29, 1997

| Heat Input Capacity MMBtu/hr | Potential Throughput MMCF/yr |
|---|---|
| 22.8 | 190.2 |

3 paint room make-up air heaters @ 1.15 mmBtu/hr
3 paint drying room heaters @ 3.45 mmBtu/hr
3 paint drying room infra red heaters @ 2.988 mmBtu/hr

| | Pollutant | | | | | |
|---|---|---|---|---|---|---|
| | PM | PM10 | SO2 | NOx | VOC | CO |
| Emission Factor in ** | 11.9 | 11.9 | 0.6 | 100.0 | 5.3 | 21.0 |
| 3 @ 3.45 mmBtu/hr & 3 @ 2.988 mmBtu/hr room dryers | | | | | | |
| Potential Emissions in tons/year | 1.0 | 1.0 | 0.0 | 8.1 | 0.4 | 1.7 |
| 3 @ 1.15 mmBtu/hr make-up heaters | | | | | | |
| Potential Emission in tons/year | 0.2 | 0 | 0.( | 1.5 | 0.1 | 0.3 |

| | Uncontrolled | Low NOx Burn | Flue Recirculation |
|---|---|---|---|
| **Emission Factor for NC | 100 | 17 | 36 |
| **Emission Factor for CC | 21 | 27 | No Data |

**Methodology**

MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,050 MMBtu
Emission Factors from AP42 1.4 - Natural Gas Combustion ( EPA 450/4-90-003 SCC #1-03-006-03)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

**Appendix A : Emissions Calculations**
**Potential HAPs Emissions**
**Surface Coating Operations**

**Company Name:** **Union Tank Car Co.**
**Address City IN Zip:** **151st & Railroad Ave., E. Chicago, IN 46312**
**CP:** **089-7082**
**Plt ID:** **089-00332**
**Reviewer:** **Aida De Guzman**
**Date:** **July 30, 1997**

| Material | Density | Gal of Mat | Maximum | Weight % | Weight % | Ethylene Glycol | Glycol Ether |
|---|---|---|---|---|---|---|---|
| New 3 booths eac | (Lb/Gal) | (gal/unit) | (unit/hour) | Ethylene | Glycol | (ton/yr) | (ton/yr) |
| using the ff: | | | | Glycol | Ether | | |
| W.H 62-11346-30x | 8.9 | 33.000000 | 0.75 | 0.00% | 1.00% | 0.00 | 9.65 |
| W.H 72-11505-30 utc | 9.7 | 33.000000 | 0.75 | 1.00% | 1.00% | 10.52 | 10.52 |
| | | | | | | 10.52 | 10.52 |
| | | | | | | x 3 booths | x 3 booths |
| Total State Potential Emissions | | | | | | 31.56 | 31.56 |
| | | | | Worst Single | HAP | **31.56** | |
| **METHODOLOGY** | | | | Total Combined | HAPs | **63.12** | |

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

## HAP Emission Calculations

**Company Name:** Union Tank Car Co.
**Plant Location:** 151st & Railroad Ave., E. Chicago, 46312
**CP:** 089-7082
**Plt ID:** 089-00332
**County:** Lake
**Permit Reviewer:** Aida De Guzman
**Date:** July 30, 1997

| Material | Density (Lb/Gal) | Gal of Mat (gal/unit) | Maximum (unit/hour) | Weight % Xylene | Weight % MIK | Weight % Ethyl Benzene | Weight % Glycol Ethers | Weight % Formaldehyde | Xylene Emission (ton/yr) | MIK Emissions (ton/yr) | Ethyl benzene Emission (ton/yr) | Glycol Ethers Emissions (ton/yr) | Formaldehyde Emission (ton/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Old 3 booths, each using the ff: | | | | | | | | | | | | | |
| W.H. 68-6196 | 9.7 | 25.000000 | 0.75 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| W.H. 58-7336-30 | 12.6 | 25.000000 | 0.75 | 3.70% | 7.40% | 0.00% | 5.10% | 0.00% | 38.29 | 76.57 | 0.00 | 52.77 | 0.00 |
| Valspar EUY-0099 | 12.9 | 25.000000 | 0.75 | 5.00% | 5.00% | 1.00% | 0.00% | 0.12% | 52.97 | 52.97 | 10.59 | 0.00 | 1.27 |
| Valspar V-40-J5K | 10.2 | 25.000000 | 0.75 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | | | |
| | | | | | | | | | 52.97 | 76.57 | 10.59 | 52.77 | 1.27 |
| | | | | | | | | | x 3 booths | x 3 booths | x 3 booths | x 3 booths | 3 booths |
| | | | | | | | Worst Single HAP | | **158.9** | **229.7** | **31.77** | **158.31** | **3.8** |
| | | | | | | | Combined HAPs | | | | **582.50** | | |

Total State Potential Emissions

**METHODOLOGY**

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

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

**Company Name:** Union Tank Car Co.
**Address City IN Zip:** 151st & Railroad Avenue, E. Chicago, IN 46312
**CP:** 089-7082
**Plt ID:** 089-00332
**Reviewer:** Aida De Guzman
**Date:** July 29, 1997

| Material | Density (Lb/Gal) | Weight % Volatile (H20& Organics) | Weight % Water | Weight % Organics | Volume % Water | Volume % Non-Vol (solids) | Gal of Mat (gal/unit) | Maximum (unit/hour) | Pounds VOC per gallon of coating less water | Pounds VOC per gallon of coating | Potential VOC pounds per hour | Potential VOC pounds per day | Potential VOC tons per year | Particulate Potential ton/yr | PM Control Efficiency % | PM after Cont ton/yr | lb VOC /gal solids | Transfer Efficiency |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Booths 3a, 3b, and 3c, each using the ff: | | | | | | | | | | | | | | | | | | |
| Williams Hayward 68-6196 | 9.8 | 33.75% | 0.0% | 33.8% | 0.0% | 48.73% | 25.00000 | 0.750 | 3.30 | 3.30 | 61.95 | 1486.86 | 271.35 | 159.80 | 99.00 | 1.60 | 6.78 | 70% |
| Williams Hayward 58-7336-30 | 12.6 | 27.28% | 0.0% | 27.3% | 0.0% | 51.85% | 25.00000 | 0.750 | 3.43 | 3.43 | 64.40 | 1545.55 | 282.06 | 225.57 | 99.00 | 2.25 | 6.62 | 70% |
| Valspar EUY-0099 | 12.9 | 26.52% | 0.0% | 26.5% | 0.0% | 50.32% | 25.00000 | 0.750 | 3.41 | 3.41 | 63.95 | 1534.71 | 280.09 | 232.81 | 99.00 | 2.30 | 6.78 | 70% |
| Valspar V-40-J5K | 10.2 | 30.00% | 0.0% | 30.0% | 0.0% | 60.00% | 25.00000 | 0.750 | 3.06 | 3.06 | 57.38 | 1377.00 | 251.30 | 175.91 | 99.00 | 1.70 | 5.10 | 70% |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 64.40 | 1545.55 | 282.06 | 232.81 | | 2.30 | | |
| Note: Pot'l emissions from the old 3 booths using the old coatings. | | | | | | | | | | | x 3 booths | x3 booths | x 3 booths | x 3 booths | | x 3 booths | | |
| | | | | | | | | | | | **193.20** | **4637.00** | **846.20** | **698.40** | | **6.90** | | |

**State Potential Emissions** **Add worst case coating to all solvents**

METHODOLOGY

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

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

**Company Name:** Union Tank Car Co.
**Address City IN Zip:** 151st & Railroad Ave., E. Chicago, IN 46312
**CP:** 089-7082
**Plt ID:** 089-00332
**Reviewer:** Aida De Guzman
**Date:** July 30, 1997

| Material | Density (Lb/Gal) | Weight % Volatile (H20& Organics) | Weight % Water | Weight % Organics | Volume % Water | Volume % Non-Vol (solids) | Gal of Mat (gal/unit) | Maximum (unit/hour) | Pounds VOC per gallon of coating less water | Pounds VOC per gallon of coating | Potential VOC pounds per hour | Potential VOC pounds per day | Potential VOC tons per year | Particulate Potential ton/yr | PM Control Efficiency % | PM Controlled Emissions ton/yr | lb VOC /gal solids | Transfer Efficiency |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New 3 booths, each using the ff. | | | | | | | | | | | | | | | | | | |
| Williams-Hayward 62-11346-30x | 8.9 | 58.57% | 48.8% | 9.8% | 52.1% | 37.20% | 33.00000 | 0.750 | 1.82 | 0.87 | 21.52 | 516.50 | 94.26 | 79.94 | 99.00 | 0.80 | 2.34 | 80% |
| Williams-Hayward 72-11505-30 utc | 9.7 | 52.62% | 43.8% | 8.8% | 50.8% | 38.80% | 33.00000 | 0.750 | 1.74 | 0.86 | 21.17 | 508.19 | 92.74 | 99.64 | 99.00 | 1.00 | 2.20 | 80% |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| **State Potential Emissions** | | | **Add worst case coating to all solvents** | | | | | | | | 21.50 | 516.50 | 94.26 | 99.60 | | 1.00 | | |
| | | | | | | | | | | | x 3 booths | x 3 booths | x 3 booths | x 3 booths | | x 3 booths | | |
| | | | | | | | | | | | **64.50** | **1549.50** | **282.90** | **298.80** | | **3.00** | | |

METHODOLOGY

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