

**CONSTRUCTION PERMIT  
OFFICE OF AIR MANAGEMENT**

**Forest River, Inc.  
1402 Lincolnway Avenue  
Goshen, Indiana 46527**

is hereby authorized to construct a recreational vehicles manufacturing operation

- (a) Two (2) high volume low pressure (HVLP) guns for coating recreational vehicles in the assembly area, with a maximum capacity of manufacturing one and half (1.5) recreational vehicles per hour, with no control for overspray.
- (b) One (1) cabinet woodworking shop saws consisting of table saws, radial arm saws, chop saws using a prefinished lumber with a maximum capacity of 600 pounds per hour (lb/hr), and exhausting at one (1) stack.
- (c) Twenty one (21) Natural gas fired space heaters with a rated maximum capacity of 0.10 million British thermal unit (MMBTU/hr), exhausting at one (1) stack.

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

Construction Permit No.: CP-039-8970-00470	
Issued by:  Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

## Construction Conditions

### General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).
2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

### Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.
4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

### First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:
  - (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
  - (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
  - (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
  - (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-1-7.1(Fees).
  - (e) Pursuant to 326 IAC 2-1-4, the Permittee shall apply for an operation permit renewal at least ninety (90) days prior to the expiration date established in the validation letter. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section

of this permit.

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 cabinet shop saws and RV assembly area 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(I), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by the IDEM or other public official having jurisdiction.

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

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

Opacity Limitations

9. That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:
- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
  - (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

Particulate Matter Emission Limitations

10. That pursuant to 326 IAC 6-3 (Process Operations):
- (a) The recreational vehicle assembly area and cabinet shop saws operation shall comply with 326 IAC 6-3-2(c) using the following equation:  
$$E = 4.10P^{0.67} \quad \text{where: } E = \text{rate of emission in pounds per hour,}$$
$$P = \text{process weight in tons per hour.}$$

Fugitive Dust Emissions

11. That pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM. [326 IAC 6-4-5(c)].

Open Burning

12. 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.

13. Part 70 Permitting Condition

Any change or modification which may increase the volatile organic compound (VOC) emissions to 100 tons per year or an individual hazardous air pollutant xylene emissions to 10 tons per year or combination hazardous air pollutants to 25 tons per year from the recreational vehicle area must be approved by the Office of Air Management (OAM) before such change may occur, pursuant to 326 IAC 2-7.

**MALFUNCTION REPORT**  
**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**  
**OFFICE OF AIR MANAGEMENT**  
FAX NUMBER - 317 233-5967

**This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6  
and to qualify for the exemption under 326 IAC 1-6-4.**

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ? \_\_\_\_\_, 100 LBS/HR VOC ? \_\_\_\_\_, 100 LBS/HR SULFUR DIOXIDE ? \_\_\_\_\_ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ? \_\_\_\_\_ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION \_\_\_\_\_.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC \_\_\_\_\_ OR, PERMIT CONDITION # \_\_\_\_\_ AND/OR PERMIT LIMIT OF \_\_\_\_\_

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ?    Y        N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ?    Y        N

COMPANY: \_\_FOREST RIVER, INC.\_\_\_\_ PHONE NO. ( 219 )\_\_533- 5934\_\_\_\_\_

LOCATION: (CITY AND COUNTY) \_\_GOSHEN , INDIANA . DeKALB  
PERMIT NO. 039-8970    AFS PLANT ID: 039-00470 \_\_\_\_\_ AFS POINT ID: \_\_\_\_\_ INSP: \_\_\_\_\_  
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: \_\_\_\_\_

DATE/TIME MALFUNCTION STARTED: \_\_\_\_/\_\_\_\_/19\_\_\_\_ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION:

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE \_\_\_\_/\_\_\_\_/19\_\_\_\_ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: \_\_\_\_\_

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: \_\_\_\_\_

MEASURES TAKEN TO MINIMIZE EMISSIONS: \_\_\_\_\_

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL \* SERVICES: \_\_\_\_\_

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: \_\_\_\_\_

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: \_\_\_\_\_

INTERIM CONTROL MEASURES: (IF APPLICABLE) \_\_\_\_\_

MALFUNCTION REPORTED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_

(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

**Please note - This form should only be used to report malfunctions  
applicable to Rule 326 IAC 1-6 and to qualify for  
the exemption under 326 IAC 1-6-4.**

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO<sub>2</sub>, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

**326 IAC 1-2-39      “Malfunction” definition**

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

\***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

---

---

---

## Indiana Department of Environmental Management Office of Air Management

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

#### Source Background and Description

Source Name: Forest River, Inc.  
 Source Location: 1402 Lincolnway Avenue, Goshen, Indiana 46527  
 County: Elkhart  
 Construction Permit No.: CP-039-8970-00470  
 SIC Code: 3792  
 Permit Reviewer: Manoj Patel

The Office of Air Management (OAM) has reviewed an application from Forest River, Inc. relating to the construction and operation of recreational vehicles manufacturing operation, consisting of the following:

- (a) Two (2) high volume low pressure (HVLP) guns for coating recreational vehicles in the assembly area, with a maximum capacity of manufacturing one and half (1.5) recreational vehicles per hour, with no control for overspray. This assembling area was constructed prior to 1980.
- (b) One (1) cabinet woodworking shop saws consisting of table saws, radial arm saws, chop saws using a prefinished lumber with a maximum capacity of 600 pounds per hour and exhausting at one (1) stack. This operation was constructed prior to 1980.  
(lb/hr),
- (c) Twenty one (21) Natural gas fired space heaters with a rated maximum capacity of 0.10 million British thermal unit (MMBTU/hr), exhausting at one (1) stack.

#### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
A	Natural Gas Heater Vent	25'	6"	200	Ambient
C	Cyclone	25'	1'	4000	Ambient

#### Enforcement Issue

IDEM is aware that the facilities listed on page 1 of this TSD have been constructed and operated prior to receipt of the proper permit. IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

**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 September 12, 1997 and an additional information received on Oct. 1, 1997.

**Emissions Calculations**

(A) Space Heaters: Natural Gas-Fired Combustion:

See Appendix A of TSD for detailed calculation.

Heat Input Capacity: 2.1 MMBtu /hour			Potential Throughput: 18.39 MMCF / year			
Pollutant	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb /MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emissions in tons/yr	0.110	0.110	0.006	0.920	0.049	0.193

Methodology:

$$\text{Emission (tons /year)} = \text{Potential Throughput (MMCF/year)} \times \text{Emission Factor (lb/MMCF)} \times (1 \text{ ton} / 2000 \text{ lb})$$

(B) RV Assembly Area: Surface Coating Operation:

See Appendix B of TSD for Detailed VOC calculation.

See Appendix C of TSD for detailed HAP calculation.

(C) Cabinet Saw Sawing Operation:

95- Emission Factor is chosen from the log sawing operation (SCC # 30700802) from the Source Classification Codes (SCC) and Emission Factor Listing for Criteria Air Pollutants (EPA-454/R-012). Cyclone is connected with the cabinet shop operation but considered only as a stack.

$$\begin{aligned} \text{Potential PM Emissions (lb/hr)} &= (0.35 \text{ lb/ton of log processed}) \times (600 \text{ lb lumber / hr}) \times (1 \text{ ton}/2000 \text{ lb}) \\ &= 0.105 \text{ lb / hour} \end{aligned}$$

$$\begin{aligned} \text{Potential PM Emissions (ton/yr)} &= 0.105 \text{ lb/hour} \times 8760 \text{ hr / year} \times 1 \text{ ton} / 2000 \text{ lb} \\ &= 0.46 \text{ ton/ year} \end{aligned}$$

SUMMARY OF EMISSIONS (TONS/YEAR)				
Pollutant	Space Heaters	Cabinet Shop Saws	RV Assembly Area	Total Uncontrolled Emissions
PM	0.110	0.46	0.08	0.65
VOC	0.049	0.0	56.901	56.95
NO <sub>x</sub>	0.920	0.0	0.0	0.920
SO <sub>2</sub>	0.006	0.0	0.0	0.006
CO	0.193	0.0	0.0	0.193

**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)	8.448	0.650
Particulate Matter (PM10)	8.448	0.650
Sulfur Dioxide (SO <sub>2</sub> )	0.006	0.006
Volatile Organic Compounds (VOC)	56.95	56.95
Carbon Monoxide (CO)	0.193	0.193
Nitrogen Oxides (NO <sub>x</sub> )	0.920	.920
Single Hazardous Air Pollutant (HAP) Xylene	9.17	9.17
Combination of HAPs	17.88	17.88

- (a) The potential emissions before control are less than the allowable emissions, therefore, the potential emissions before control are used for the permitting determination.
- (b) Allowable emissions are determined from the applicability of rule 326 IAC 6-3.
  - (i) Cabinet Shop Saws: ( P =0.3 ton/hr)

$$\begin{aligned}
 E &= 4.10 P^{0.67} \\
 &= 4.10 (0.3)^{0.67} \\
 &= 1.83 \text{ lb/hr} \\
 &= 8.01 \text{ ton/year}
 \end{aligned}$$

Where:

E = Allowable PM emissions, lb/hr  
P = Process Weight rate, ton/hr  
= 0.30 ton/hr

(ii) RV Assembly Area: (P= 0.004 ton/hr)

E =  $4.10 P^{0.67}$   
=  $4.10 (0.004)^{0.67}$   
= 0.10 lb/hr  
= 0.448 ton/yr

Where:

E = Allowable PM emissions, lb/hr  
P = Process Weight rate, ton/hr  
= (5.399 lb. Material/ RV) x (1.5 RV/hr) x (1 ton / 2000 lb)  
= 0.004 ton/hr

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

### County Attainment Status

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

### Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Emissions (ton/yr)
PM	0.650
PM10	0.650
SO <sub>2</sub>	0.006
VOC	56.950

CO	0.193
NO <sub>x</sub>	0.920
Single HAP Xylene	9.170
Combination HAPs	17.880

This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

### Part 70 Permit Determination

#### 326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year
- (b) a single hazardous air pollutant (HAP) Xylene is not greater than or equal to 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

### Federal Rule Applicability

- (a) There are no New Source Performance Standards (326 IAC 12) applicable to this facility.
- (b) 40 CFR Part 63, Subpart JJ, National Emission Standards for Wood Furniture Manufacturing Operations

This woodworking operation is not covered by 40 CFR Part 63, Subpart JJ (National Emission Standards for Wood Furniture Manufacturing Operation), because this source is not a major source as defined in 40 CFR Part 63.2 and do not engage in manufacturing of wood furniture or wood furniture components.

### State Rule Applicability

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

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

#### 326 IAC 6-3 Particulate Emissions Limitation

This source is subject to this rule which mandates an allowable particulate matter (PM) emissions using the following equation:

$$E = 4.10 P^{0.67}$$

Where: E = PM allowable emissions in pound per hour  
P = Process weight rate in ton / hr

Cabinet Shop Saws: ( P =0.3 ton/hr)

$$\begin{aligned} E &= 4.10 P^{0.67} \\ &= 4.10 (0.3)^{0.67} \\ &= 1.83 \text{ lb/hr} \\ &= 8.01 \text{ ton/year} \end{aligned}$$

Based on this calculations, the potential emissions are less than the allowable emissions, therefore, this cabinet shop saws complies with the rule.

RV Assembly Area: (P= 0.004 ton/hr)

$$\begin{aligned} E &= 4.10 P^{0.67} \\ &= 4.10 (0.004)^{0.67} \\ &= 0.10 \text{ lb/hr} \\ &= 0.448 \text{ ton/yr} \end{aligned}$$

Based on this calculations, the potential emissions are less than the allowable emissions, therefore, this RV assembly area complies with the rule.

### 326 IAC 5-1-2 Opacity Limitation

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

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

### 326 IAC 8-1-6 (General Reduction Requirement)

This facility is not subject to 326 IAC 8-1-6 (General Reduction Requirement), because the source has the potential emissions of volatile organic compound (VOC) of 25 tons per year but it was constructed prior to January 1, 1980.

### 326 IAC 8-2-12 (Surface Coating Emission Limitations: Wood Furniture and Cabinet Coating)

This facility is not subject to 326 IAC 8-2-12 (Surface Coating Emission Limitations: Wood Furniture and Cabinet Coating), because the facility does not surface coat wood furnishings

which includes cabinets, tables, beds, chairs, sofas, art objects, and any other coated furnishing made of solid wood, wood composition.

#### 326 IAC 8-6 (Organic Solvent Emission Limitations)

This facility is not subject to 326 IAC 8-6 (Organic Solvent Emission Limitations), because the source does not have potential volatile organic compound (VOC) emissions of 100 tons per year.

#### **Air 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.

See attached spreadsheets for detailed air toxic calculations.

See Appendix C of this TSD for detailed calculation of Hazardous Air Pollutants (HAPs).

#### **Conclusion**

The construction of high volume low pressure (HVLP) guns for coating recreational vehicles in the assembly area, cabinet woodworking shop saws and space heaters will be subject to the conditions of the attached proposed **Construction Permit No. CP-039-8970-00470**.





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

Appendix B of TSD

<b>Company Name:</b>	Forest River, Inc.
<b>Address City IN Zip:</b>	1402 Lincolnway Avenue, Goshen, Indiana 46527
<b>CP:</b>	039-8970
<b>Pit ID:</b>	039-00470
<b>Reviewer:</b>	MANOJ PATEL
<b>Date:</b>	Sept. 24, 1997

Material	Density (Lb/Gal)	Weight % Volatile (H2O& Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Vol (solids)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential ton/yr	lb VOC /gal solids	Transfer Efficiency
Adhesive 676	6.3	79.20%	0.0%	79.2%	0.0%	24.00%	0.040	1.5	4.96	4.96	0.30	7.14	1.30	0.00	20.66	100%
Base Maker 7175S	6.6	99.80%	0.0%	99.8%	0.0%	2.00%	0.00033	1.5	6.63	6.63	0.0033	0.08	0.01	0.00001	331.34	60%
Blender 7601S-1	9.02	67.10%	0.0%	67.1%	0.0%	36.00%	0.00445	1.5	6.05	6.05	0.04	0.97	0.18	0.03	16.81	60%
ABS Cement	7.09	100.00%	0.0%	100.0%	0.0%	0.00%	0.02450	1.5	7.09	7.09	0.26	6.25	1.14	0.00	ERR	100%
ABS Cleaner	6.61	95.00%	5.0%	90.0%	0.0%	0.00%	0.00222	1.5	5.95	5.95	0.02	0.48	0.09	0.00	ERR	100%
Adhesive 8011	8.35	0.60%	0.0%	0.6%	0.0%	80.00%	1.08000	1.5	0.05	0.05	0.08	1.95	0.36	0.00	0.06	100%
Alpha Sealant	8.34	20.00%	20.0%	0.0%	20.0%	80.00%	0.42000	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100%
Aliphatic Resin Adhesive	8.35	30.00%	30.0%	0.0%	30.0%	30.00%	0.40990	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100%
Centri Paint	10.95	60.00%	0.0%	60.0%	0.0%	40.00%	0.00100	1.5	6.57	6.57	0.01	0.24	0.04	0.01	16.43	60%
Cronar	7.51	89.30%	0.0%	89.3%	0.0%	12.00%	0.00022	1.5	6.71	6.71	0.00	0.05	0.01	0.00	55.89	60%
Brake Cleaner	10.83	100.00%	0.0%	100.0%	100.0%	0.00%	0.03000	1.5	ERR	10.83	0.49	11.69	2.13	0.00	ERR	100%
Spray Silicone	7.00	92.00%	0.0%	92.0%	0.0%	9.00%	0.01000	1.5	6.44	6.44	0.10	2.32	0.42	0.01	71.56	75%
Geocell 2300	7.92	35.00%	0.0%	35.0%	0.0%	65.00%	1.82300	1.5	2.77	2.77	7.58	181.99	33.21	0.00	4.27	100%
HyPlus Pipe Dope	8.40	50.00%	0.0%	50.0%	0.0%	50.00%	0.00084	1.5	4.20	4.20	0.01	0.13	0.02	0.00	8.40	100%
Minaral Spirits	8.51	100.00%	0.0%	100.0%	0.0%	0.00%	0.10600	1.5	8.51	8.51	1.35	32.49	5.93	0.00	ERR	100%
MB 2010 Adhesive	9.33	57.40%	0.0%	57.4%	0.0%	42.00%	0.21300	1.5	5.36	5.36	1.71	41.07	7.49	0.00	12.75	100%
Polyster Glazing Putty	15.00	25.00%	0.0%	25.0%	0.0%	70.00%	0.00011	1.5	3.75	3.75	0.00	0.01	0.0027	0.00	5.36	100%
Rector Seal Sealant	11.01	20.00%	20.0%	0.0%	20.0%	20.00%	0.00000	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100%
Sikaflex 252	9.80	5.90%	0.0%	5.9%	0.0%	94.00%	0.75000	1.5	0.58	0.58	0.65	15.61	2.85	0.00	0.62	100%
Sikaflex 221	10.00	6.00%	0.0%	6.0%	0.0%	93.00%	0.42000	1.5	0.60	0.60	0.38	9.07	1.66	0.00	0.65	100%
Spray'n Go Paint	6.09	86.10%	0.0%	86.1%	0.0%	15.00%	0.00200	1.5	5.24	5.24	0.02	0.38	0.07	0.00	34.96	75%
Sia-put Adhesive	6.51	80.00%	0.0%	80.0%	0.0%	20.00%	0.00044	1.5	5.20	5.20	0.0034	0.08	0.02	0.00	26.02	75%
Denatured Alcohol	6.70	100.00%	0.0%	100.0%	0.0%	0.00%	0.00011	1.5	6.70	6.70	0.0011	0.03	0.00	0.00	ERR	100%
Duraseal Clear	12.51	0.00%	0.0%	0.0%	0.0%	100.00%	0.04600	1.5	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	100%
Oak Stain	7.26	63.00%	0.0%	63.0%	0.0%	39.00%	0.00010	1.5	4.57	4.57	0.0007	0.02	0.00	0.00	11.73	100%

State Potential Emissions

Add worst case coating to all solvents

13.00

312.04

56.95

0.06

**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

Total VOC :

56.95

Ton/year

Appendix C: HAP Emission Calculations

<b>Company Name:</b> Forest River, Inc. <b>Plant Location:</b> 1402 Lincolnway Avenue, Goshen, <b>County:</b> Elkhart <b>CP:</b> 039-8970 <b>PII ID:</b> 039-00470 <b>Permit Reviewer:</b> Manoj Patel <b>Date:</b> Oct. 2, 1997
--

Material	Density (Lb/Gal)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Weight % Hexane	Weight % MIBK	Weight % Xylene	Weight % MEK	Weight % Toluene	Weight % Trichloro1,1,1	Weight % Styrene	Weight % MDI	Weight % Ethylbenzene	Weight % Methanol	Weight % Cumene	Hexane Emissions (ton/yr)	MIBK Emissions (ton/yr)	Xylene Emissions (ton/yr)	MEK Emissions (ton/yr)	Toluene Emissions (ton/yr)	Trichloro 1,1,1 Emissions (ton/yr)	Styrene Emissions (ton/yr)	MDI Emissions (ton/yr)	Ethylbenze Emissions (ton/yr)	Methanol Emissions (ton/yr)	Cumene Emissions (ton/yr)
Adhesive 676	6.26	0.040000	1.50	40.00%											0.66										
BaseMaker 7175S	6.64	0.003334	1.50		6.00%	8.00%										0.00087	0.001166								
Blender 7601S-1	9.02	0.004450	1.50			11.00%		28.00%	28.00%								0.03	0.07	0.07						
Abs Cement	7.09	0.024500	1.50					75.00%										0.86							
ABS Cleaner	6.61	0.002220	1.50					95.00%										0.09							
8011 Adhesive	8.35	1.080000	1.50																						
Alpha Sealant	7.26	0.420000	1.50																						
Aliphatic Resin Adhesive	9.49	0.409950	1.50																						
Oak Stain	7.26	0.000100	1.50		11.26%			11.58%	34.71%						0.00054			0.00055	0.00166						
Centari Paint	10.95	0.010000	1.50			20.00%	4.00%	11.00%									0.14	0.03	0.08						
Cronar	7.51	0.000222	1.50			32.90%	36.90%	21.30%									0.00360	0.00404	0.00233						
Brake Cleaner	10.83	0.030000	1.50						99.00%												2.11				
Spray Silicone	7.00	0.010000	1.50																						
Denatured Alcohol	6.70	0.000111	1.50																						
DuraSeal Clear	12.51	0.046000	1.50																						
GeoCell 2300	7.92	1.823000	1.50			7.00%																			2.85
Hy Plus Pipe Dope	8.40	0.000835	1.50														6.64								
Minaral Spirits	6.51	0.106000	1.50																						
MB2010 Adhesive	9.33	0.213000	1.50					5.00%														0.65			
Polyster Glazing Putty	15.00	0.00011	1.50							25.00%												0.00273			
Rector Seal Pipe sealant	11.01	0.001668	1.50																						
Sikaflex 252	9.80	0.750000	1.50			2.00%					0.03%						0.97					0.01			
Sikaflex 221	10.00	0.420000	1.50			5.00%											1.38						1.10		
Spray 'n Go Paint	6.09	0.002000	1.50			10.00%	10.00%	5.00%									0.01	0.01	0.00				0.00		
Sta-put Adhesive	6.51	0.004440	1.50	35.00%																					
Lacquer Thinner	7.19	0.000667	1.50		35.00%																			0.0030	

Total State Potential Emissions

0.72    0.01    9.17    1.07    0.81    2.11    0.00    0.01    1.11    2.85

**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

Individual HAP (Xylene): 9.17 ton/yr  
 Combination of Total HAPS: 17.88 ton/yr

**Appendix A: Emission Calculations**

Appendix A of TSD

**Natural Gas Combustion**

**MM Btu/hr 0.3 - < 10**

**Radiant Space heaters**

**Company Name: Forest River, Inc.**  
**Address City IN Zip: 1402 Lincolnway Avenue, Goshen, Indiana 46527**  
**CP: 039-8970**  
**Plt ID: 039-00470**  
**Reviewer: Manoj Patel**  
**Date: Oct.1,1997**

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

2.10

18.4

Pollutant

	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons/yr	0.110	0.110	0.006	0.920	0.049	0.193
Potential Emission in lb./hour	0.025	0.025	0.001	0.210	0.011	0.044

**Methodology**

Total of 21 space heater each of rated at 0.10 mmBtu per hour considered in the calculation.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Emission (lb./hour) = Emission (tons/year) x 2000 lb./1 Ton x 1 year / 8760 hours